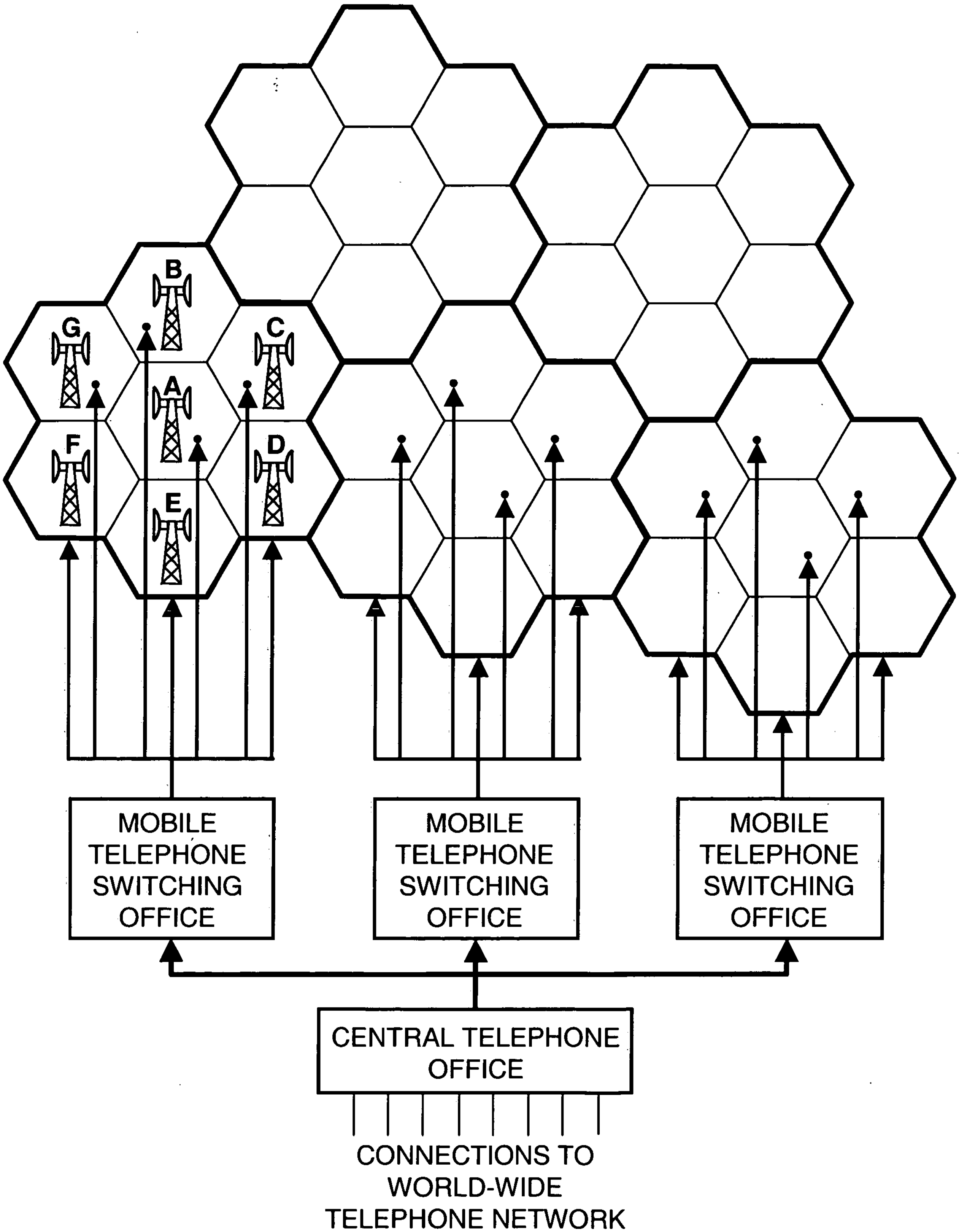

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FIG. 1

EP 0 695 095 A2

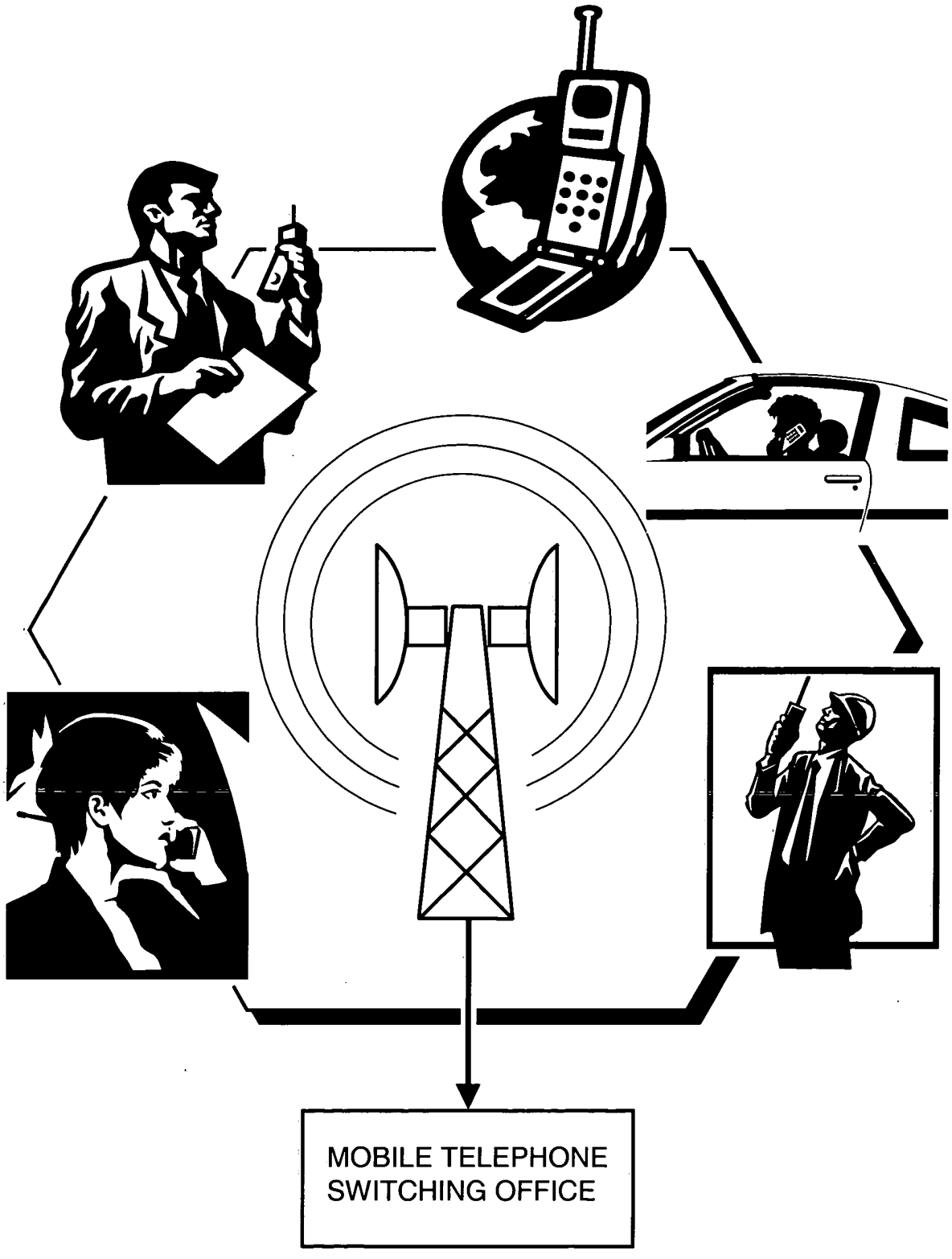

FIG. 2

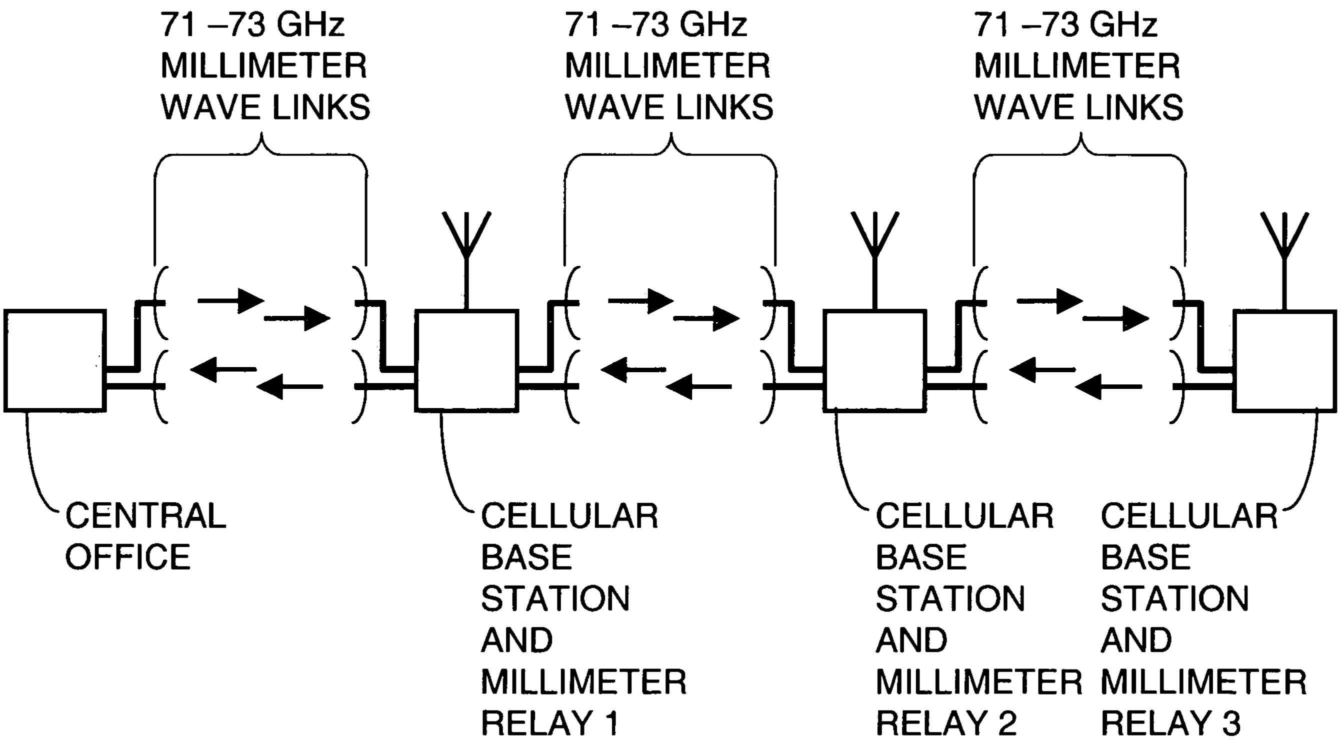
71 –73 GHz
MILLIMETER
WAVE LINKS
71 –73 GHz
MILLIMETER
WAVE LINKS
71 –73 GHz
MILLIMETER
WAVE LINKS
CENTRAL
OFFICE
CELLULAR
BASE
STATION
AND
MILLIMETER
RELAY 1
CELLULAR
BASE
STATION
AND
MILLIMETER
RELAY 2
CELLULAR
BASE
STATION
AND
MILLIMETER
RELAY 3

FIG. 3

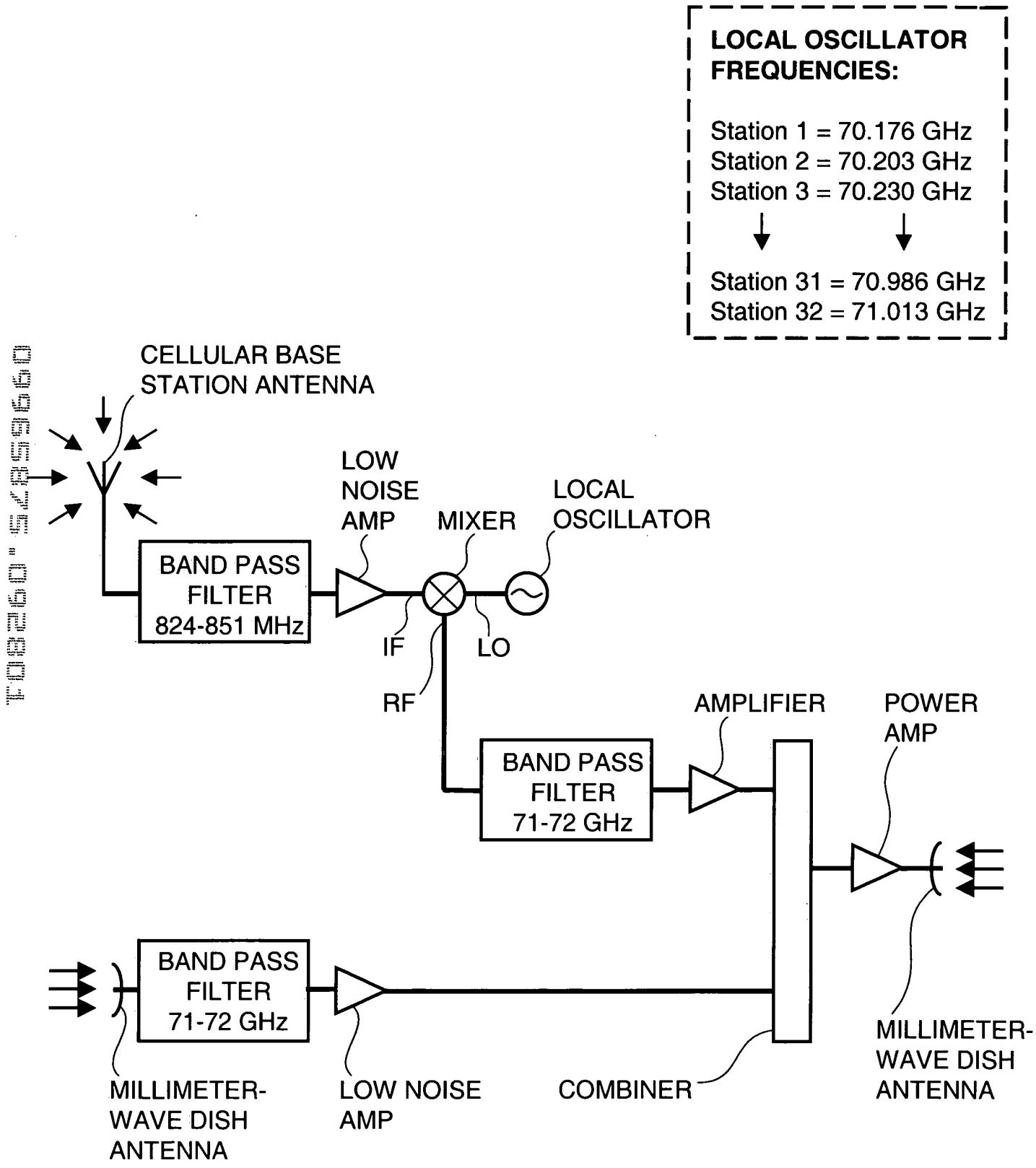

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FIG. 4

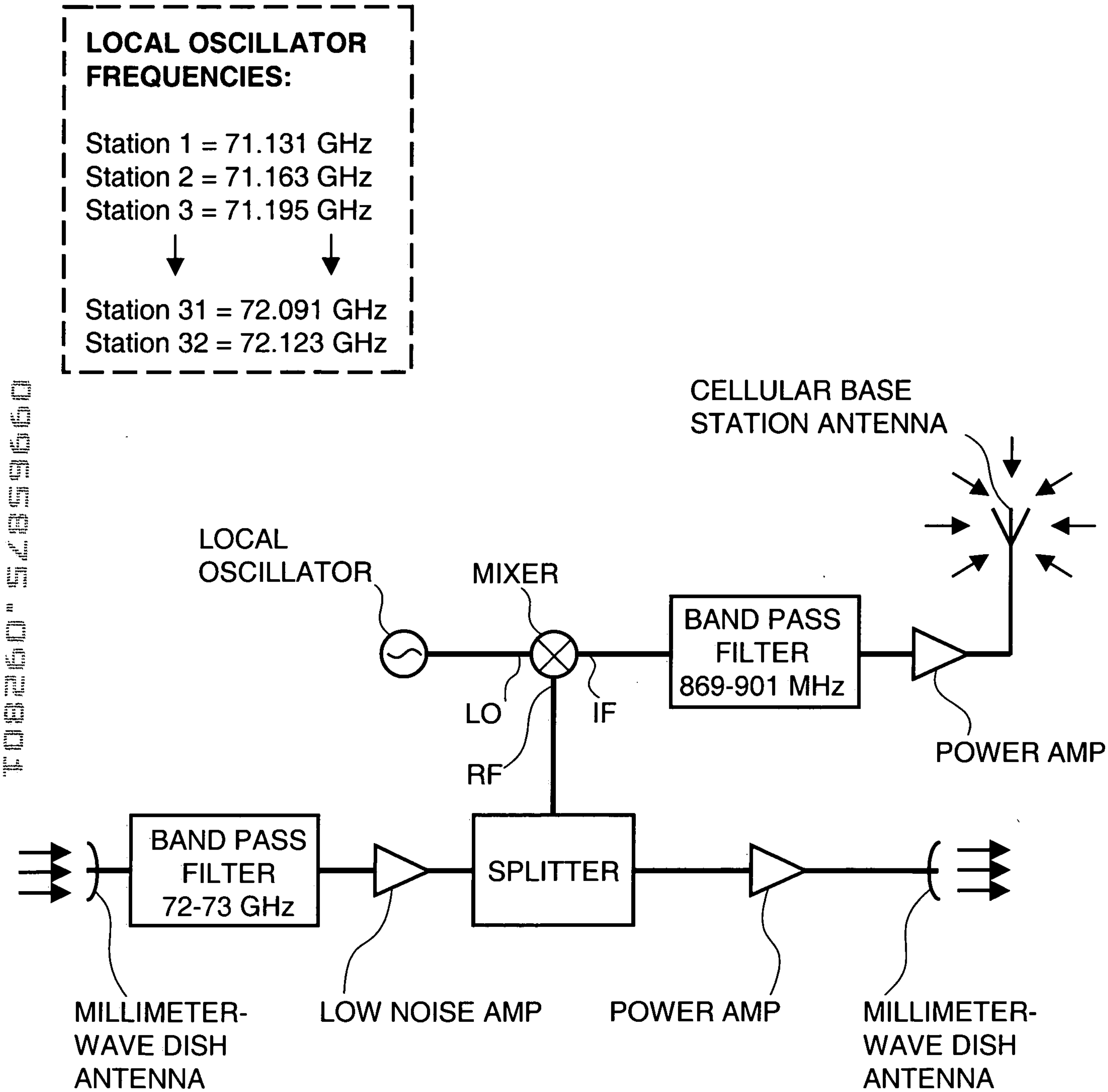

LOCAL OSCILLATOR FREQUENCIES:
Station 1 = 71.131 GHz
Station 2 = 71.163 GHz
Station 3 = 71.195 GHz
Station 31 = 72.091 GHz
Station 32 = 72.123 GHz
CELLULAR BASE STATION ANTENNA
LOCAL OSCILLATOR
MIXER
BAND PASS FILTER 869-901 MHz
LO
IF
RF
POWER AMP
BAND PASS FILTER 72-73 GHz
SPLITTER
MILLIMETER-WAVE DISH ANTENNA
LOW NOISE AMP
POWER AMP
MILLIMETER-WAVE DISH ANTENNA

FIG. 5

T08260" 5285960

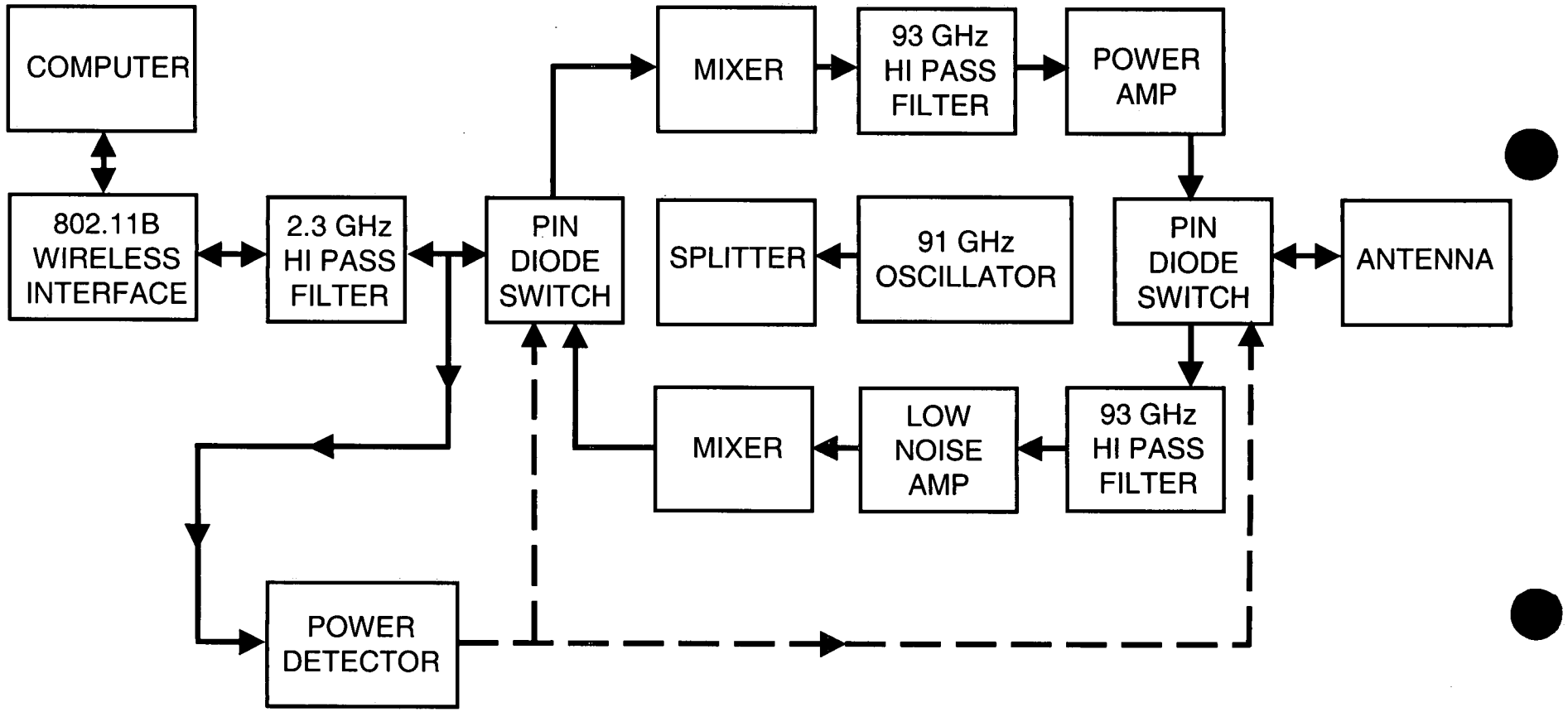


FIG. 6

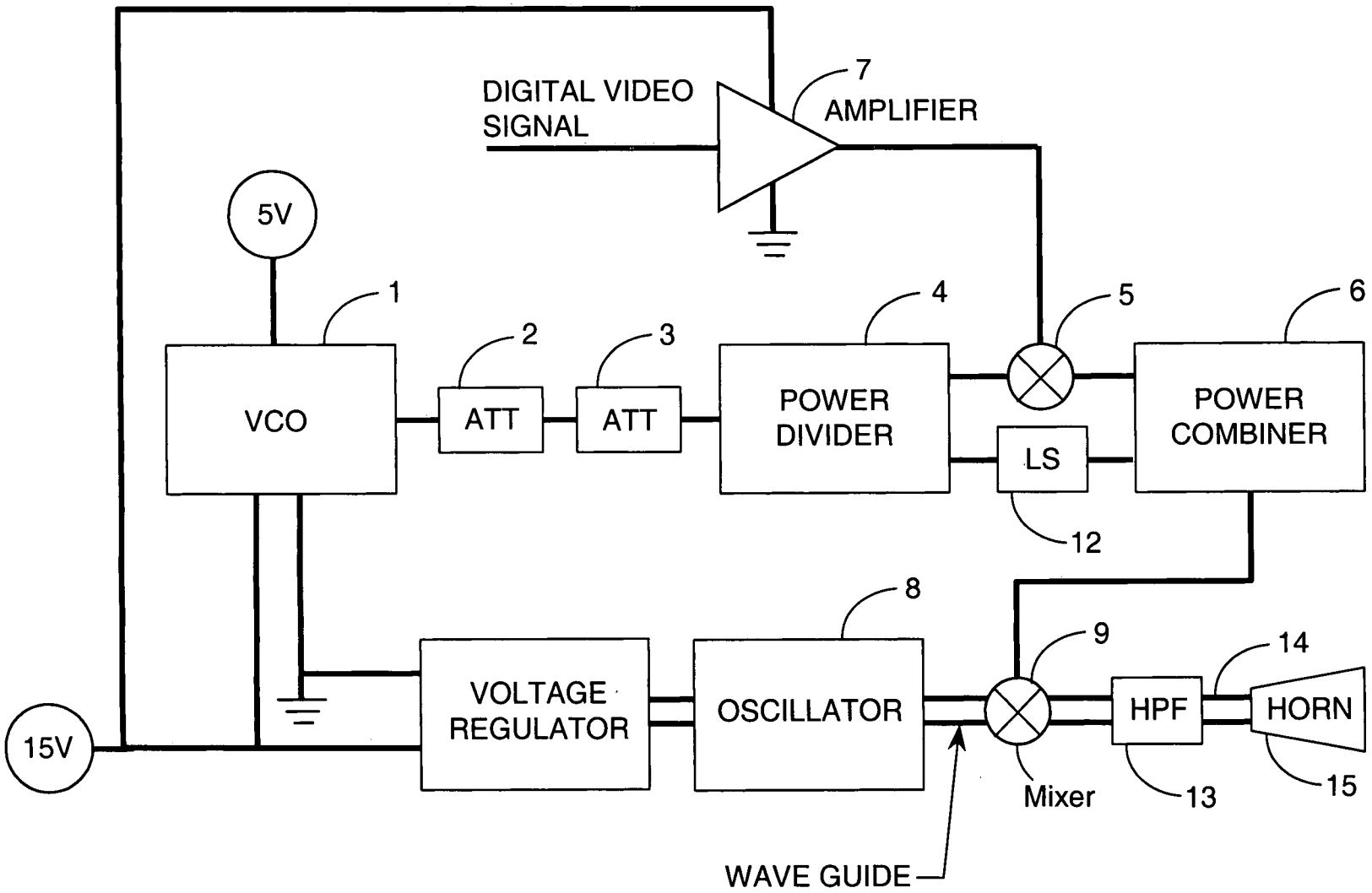

DIGITAL VIDEO SIGNAL
7
AMPLIFIER
5V
1
2
3
4
5
6
VCO
ATT
ATT
POWER DIVIDER
LS
POWER COMBINER
12
8
9
14
VOLTAGE REGULATOR
OSCILLATOR
HPF
HORN
15V
Mixer
13
15
WAVE GUIDE

FIG. 7

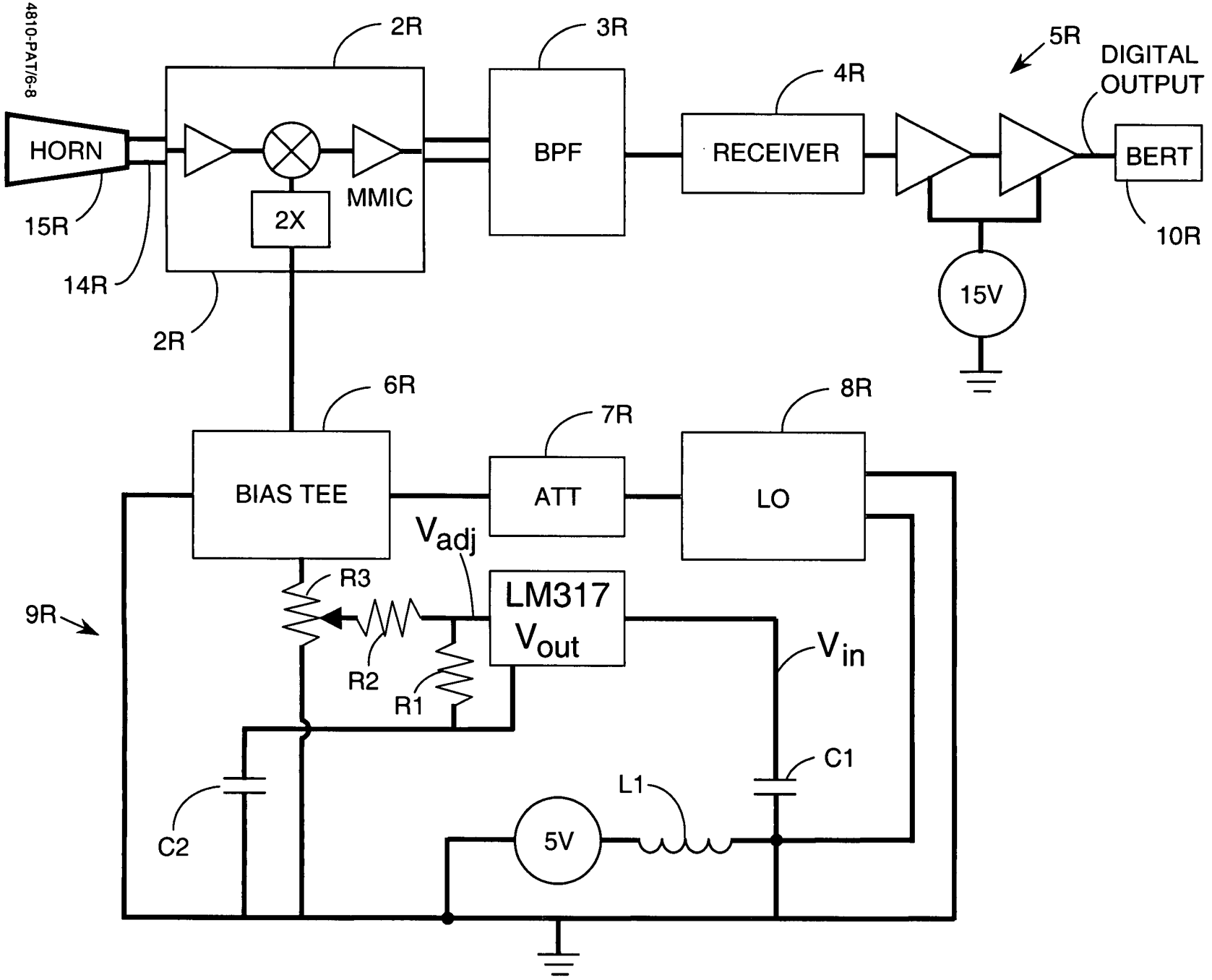
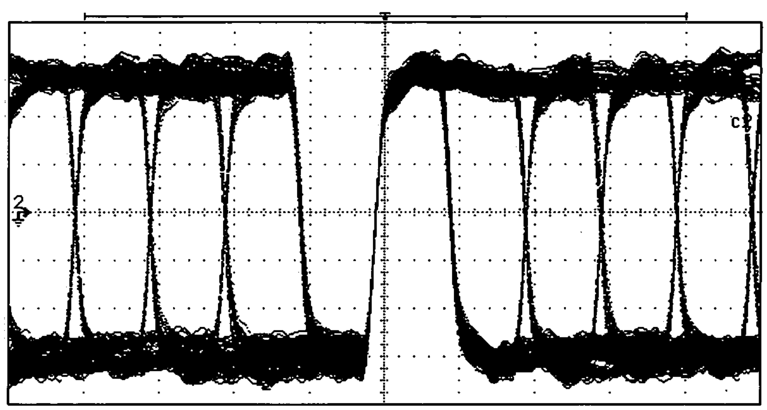

2R
3R
5R
DIGITAL
OUTPUT
4R
HORN
BPF
RECEIVER
BERT
MMIC
2X
15R
14R
2R
10R
15V
6R
8R
7R
BIAS TEE
ATT
LO
Vadj
R3
LM317
Vout
9R
Vin
R2
R1
C1
L1
C2
5V

FIG. 8

09596578.082601



-24.000 ns   1.000 ns   26.000 ns

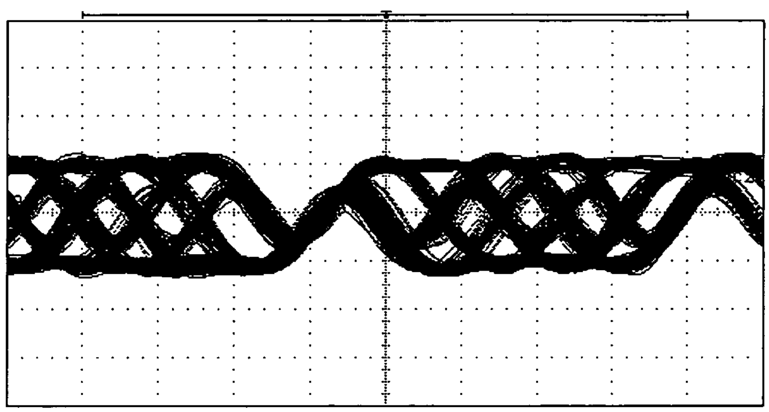
5.00 ns/div   Real time

2 200 mV/

0.00000 V

RECEIVER SIGNAL FROM BERT 200

FIG. 9



-4.000 ns 1.000 ns 6.000 ns

1.00 ns/div Real time

2 500 mV/

0.00000 V

RECEIVER SIGNAL FROM BERT 200

FIG. 10

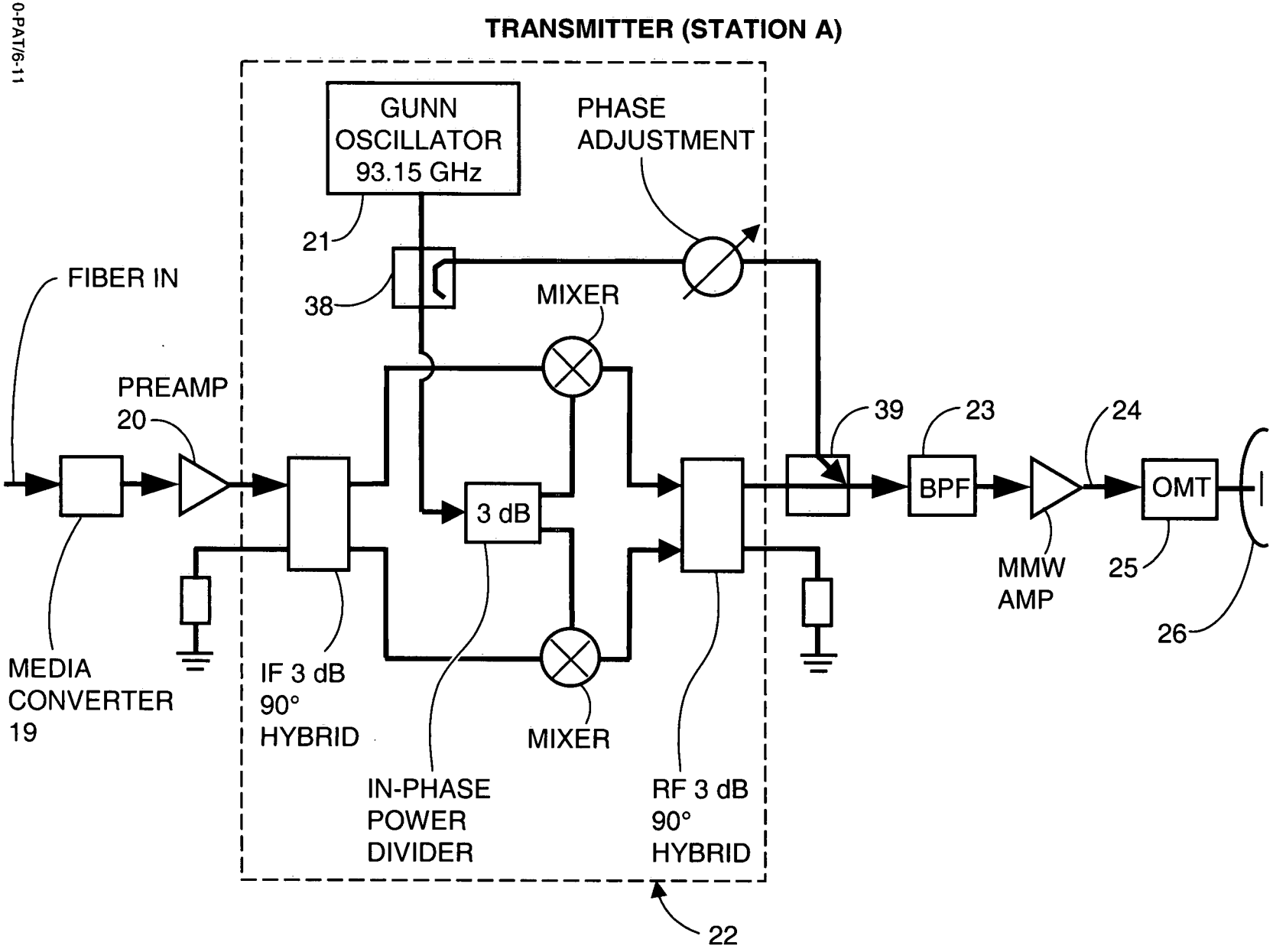

TRANSMITTER (STATION A)
GUNN OSCILLATOR 93.15 GHz
PHASE ADJUSTMENT
21
38
FIBER IN
MIXER
PREAMP
20
39
23
24
3 dB
BPF
OMT
MMW AMP
25
MEDIA CONVERTER 19
IF 3 dB 90° HYBRID
MIXER
26
IN-PHASE POWER DIVIDER
RF 3 dB 90° HYBRID
22

FIG. 11A

RECEIVER (STATION A)

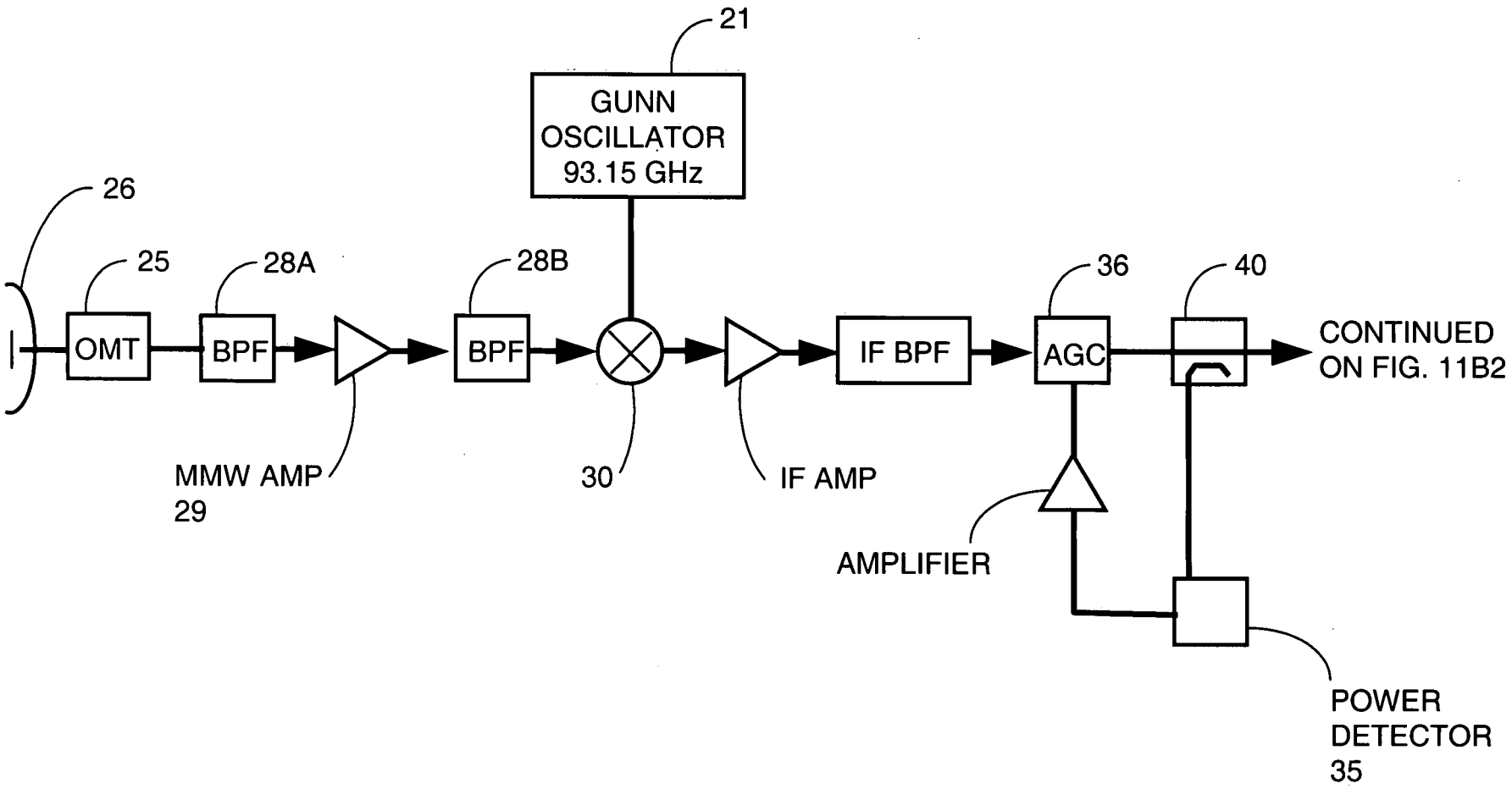


FIG. 11B1

TO8260 '5785966O

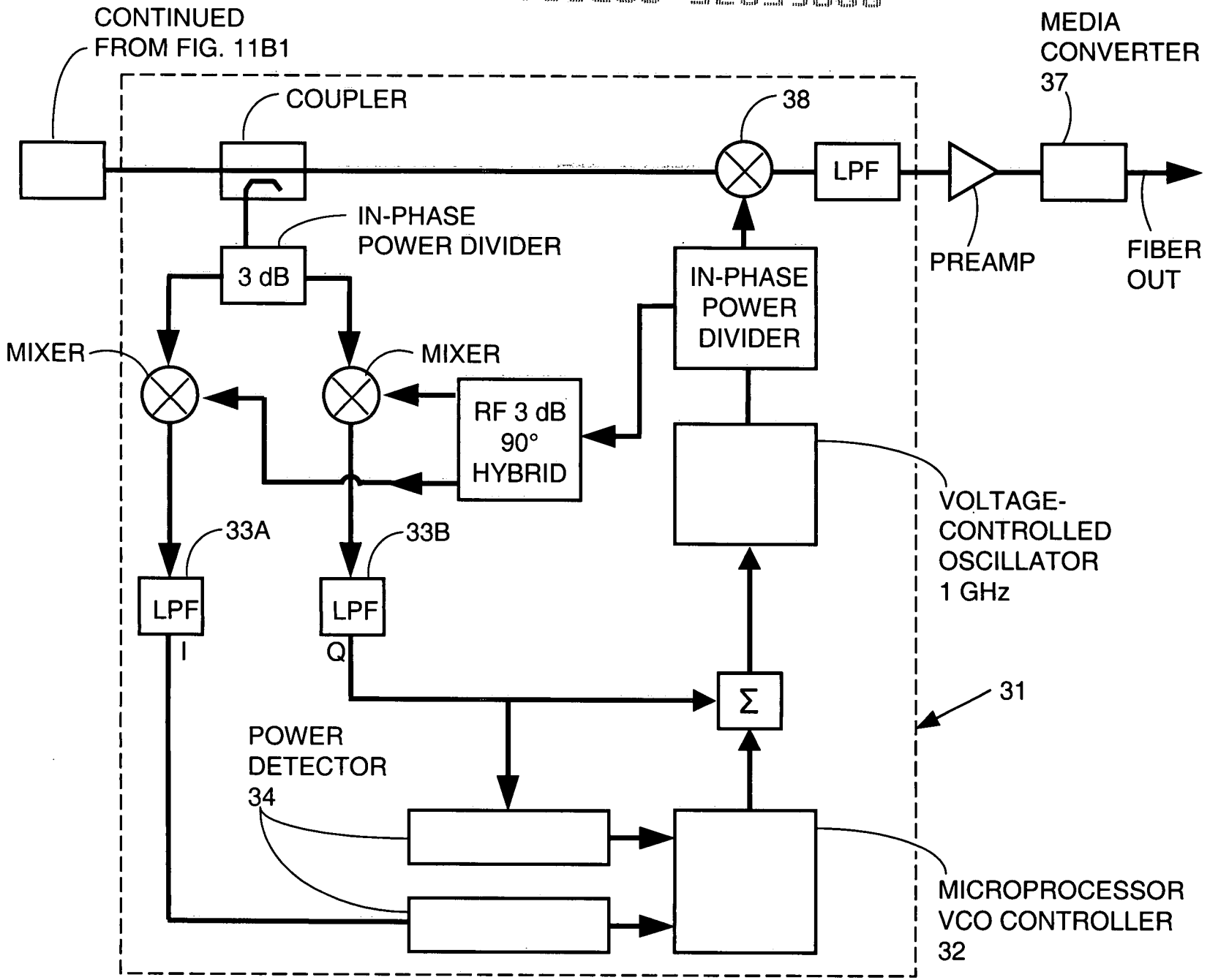


FIG. 11B2

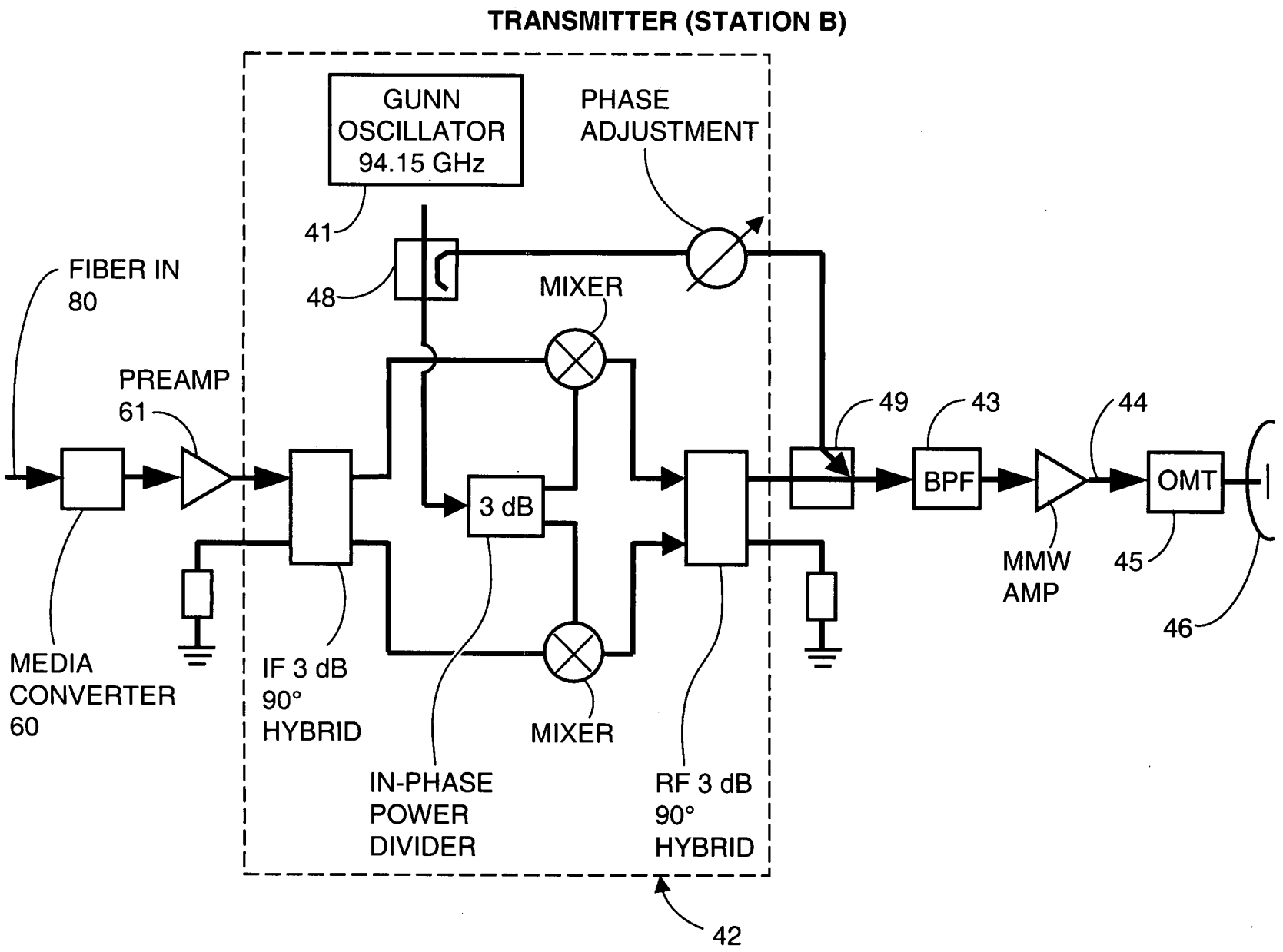

TRANSMITTER (STATION B)
GUNN OSCILLATOR 94.15 GHz
PHASE ADJUSTMENT
41
48
FIBER IN 80
MIXER
PREAMP 61
49
43
44
3 dB
BPF
OMT
MMW AMP
45
46
MEDIA CONVERTER 60
IF 3 dB 90° HYBRID
MIXER
IN-PHASE POWER DIVIDER
RF 3 dB 90° HYBRID
42

FIG. 12A

T08260" 5785960

RECEIVER (STATION B)

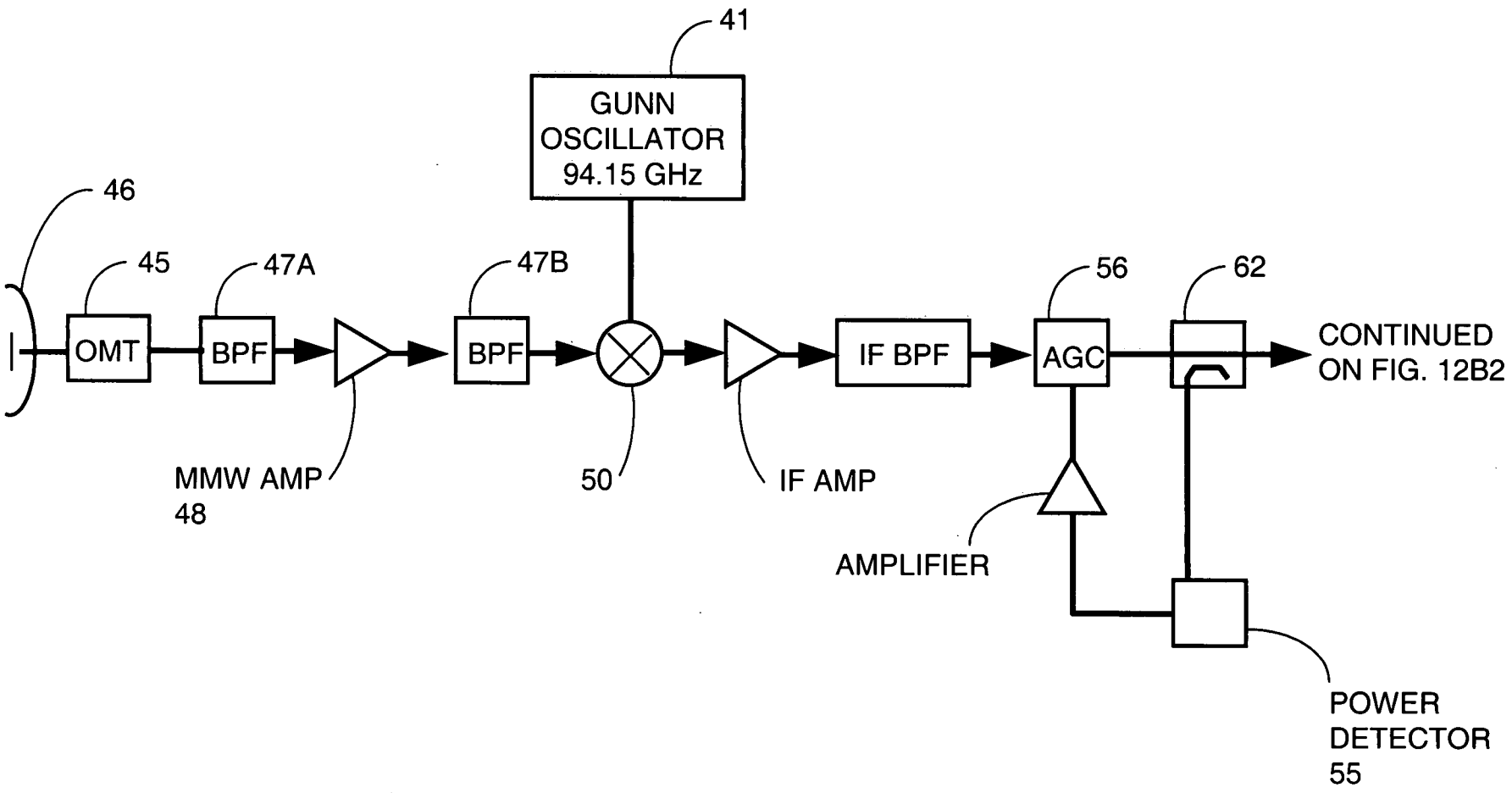


FIG. 12B1

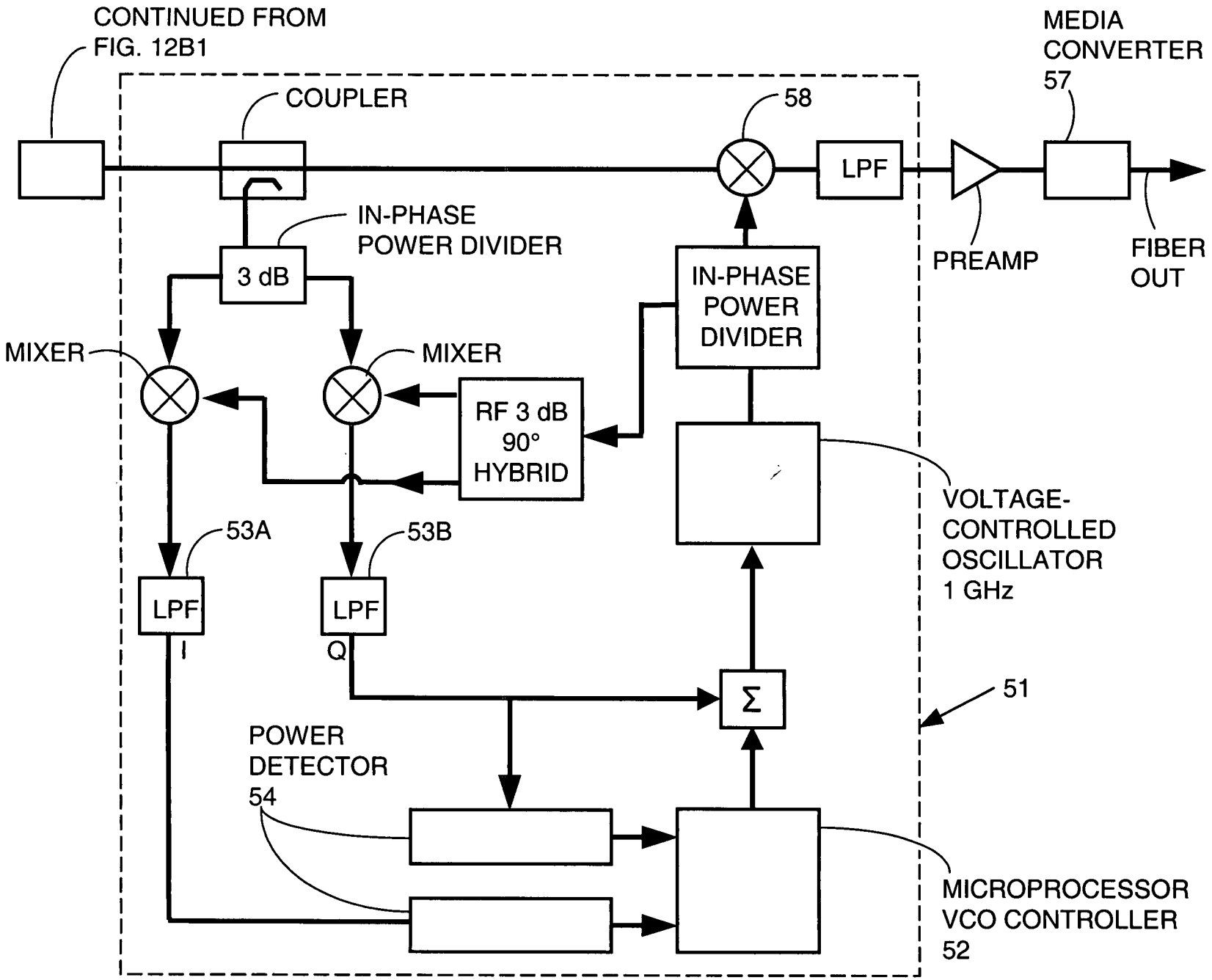
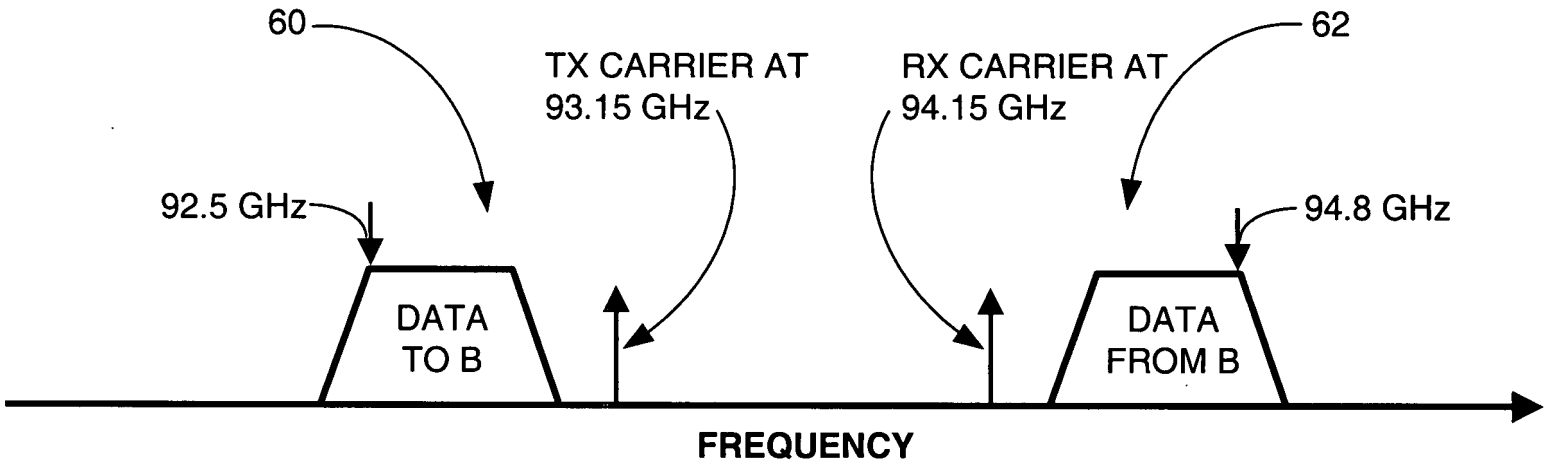

CONTINUED FROM
FIG. 12B1
COUPLER
58
MEDIA
CONVERTER
57
LPF
IN-PHASE
POWER DIVIDER
3 dB
PREAMP
FIBER
OUT
IN-PHASE
POWER
DIVIDER
MIXER
MIXER
RF 3 dB
90°
HYBRID
VOLTAGE-
CONTROLLED
OSCILLATOR
1 GHz
53A
53B
LPF
I
LPF
Q
Σ
51
POWER
DETECTOR
54
MICROPROCESSOR
VCO CONTROLLER
52

FIG. 12B2

SPECTRUM PLANNING DIAGRAMS
(STATION A)



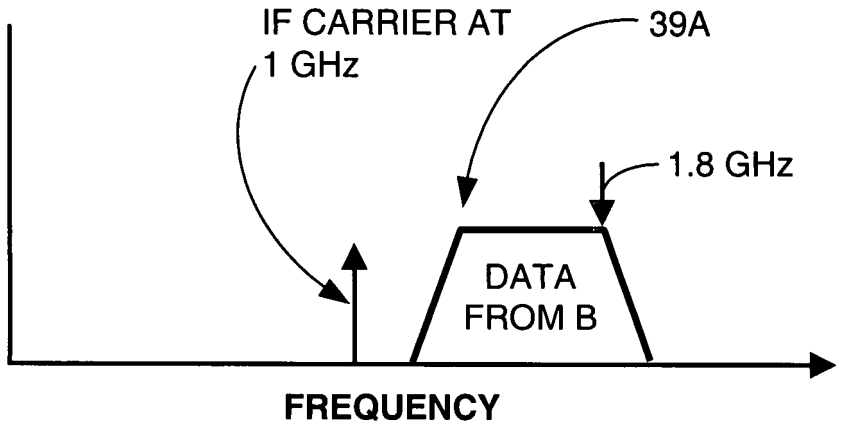
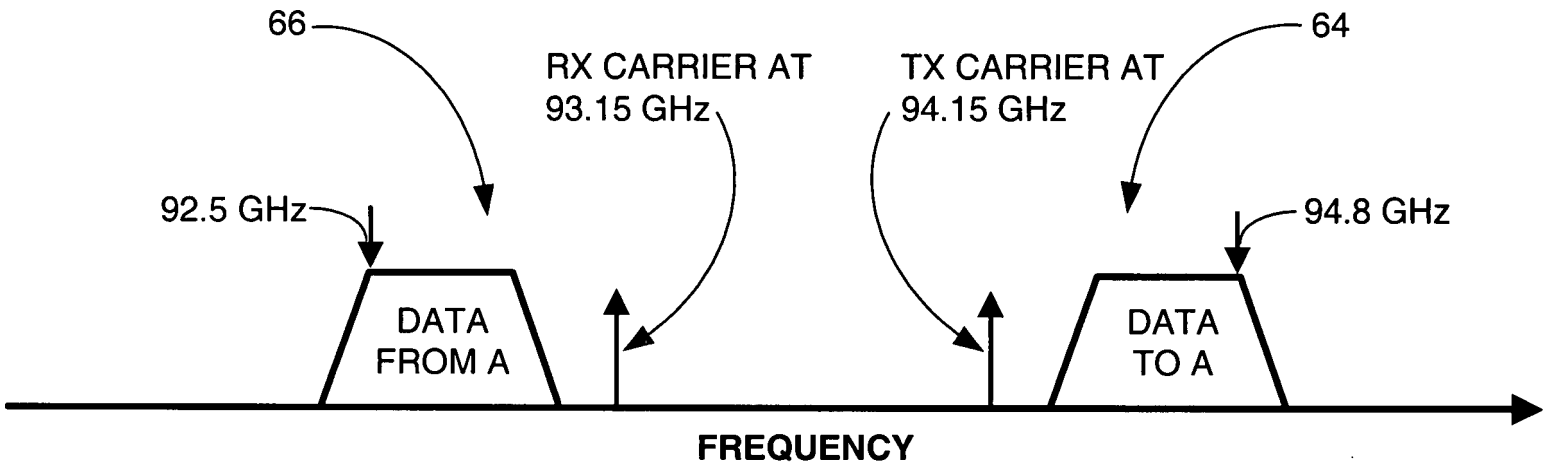


FIG. 13A

SPECTRUM PLANNING DIAGRAMS
(STATION B)



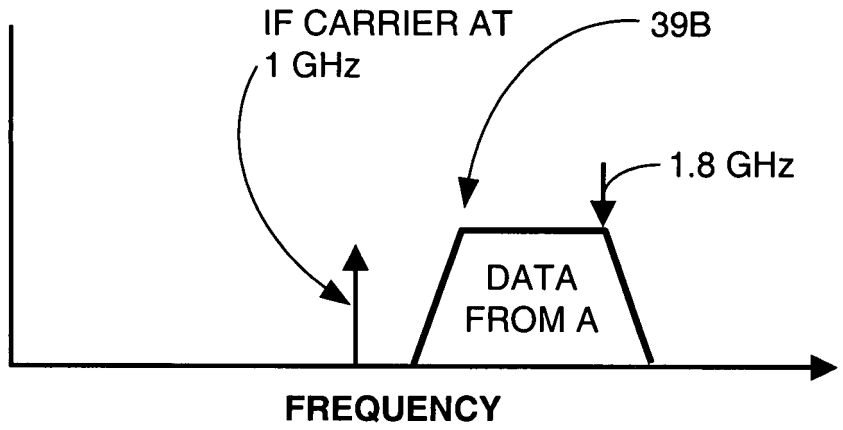


FIG. 13B

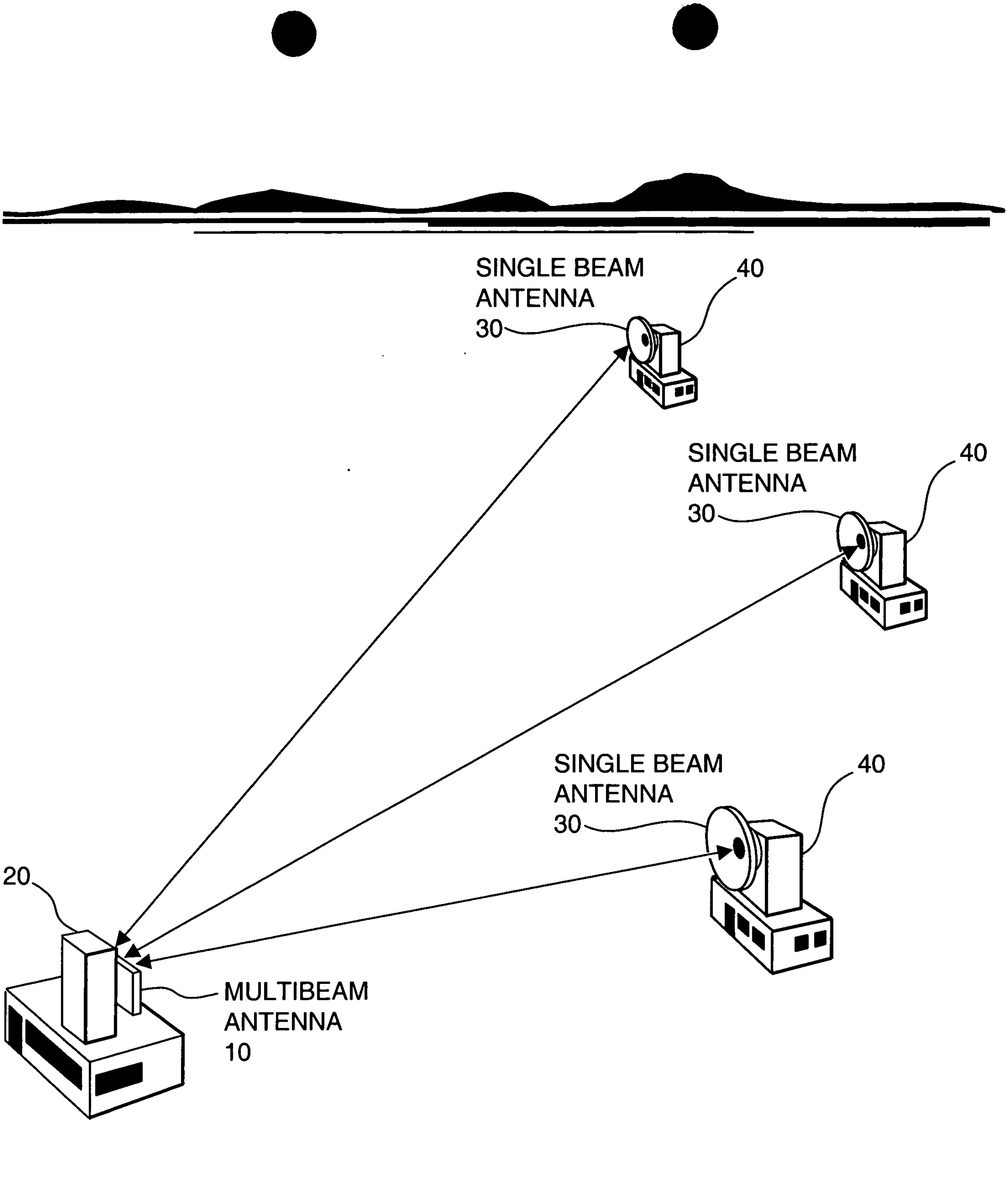

SINGLE BEAM
ANTENNA
30
40
SINGLE BEAM
ANTENNA
30
40
SINGLE BEAM
ANTENNA
30
40
20
MULTIBEAM
ANTENNA
10

FIG. 14

6,005,856

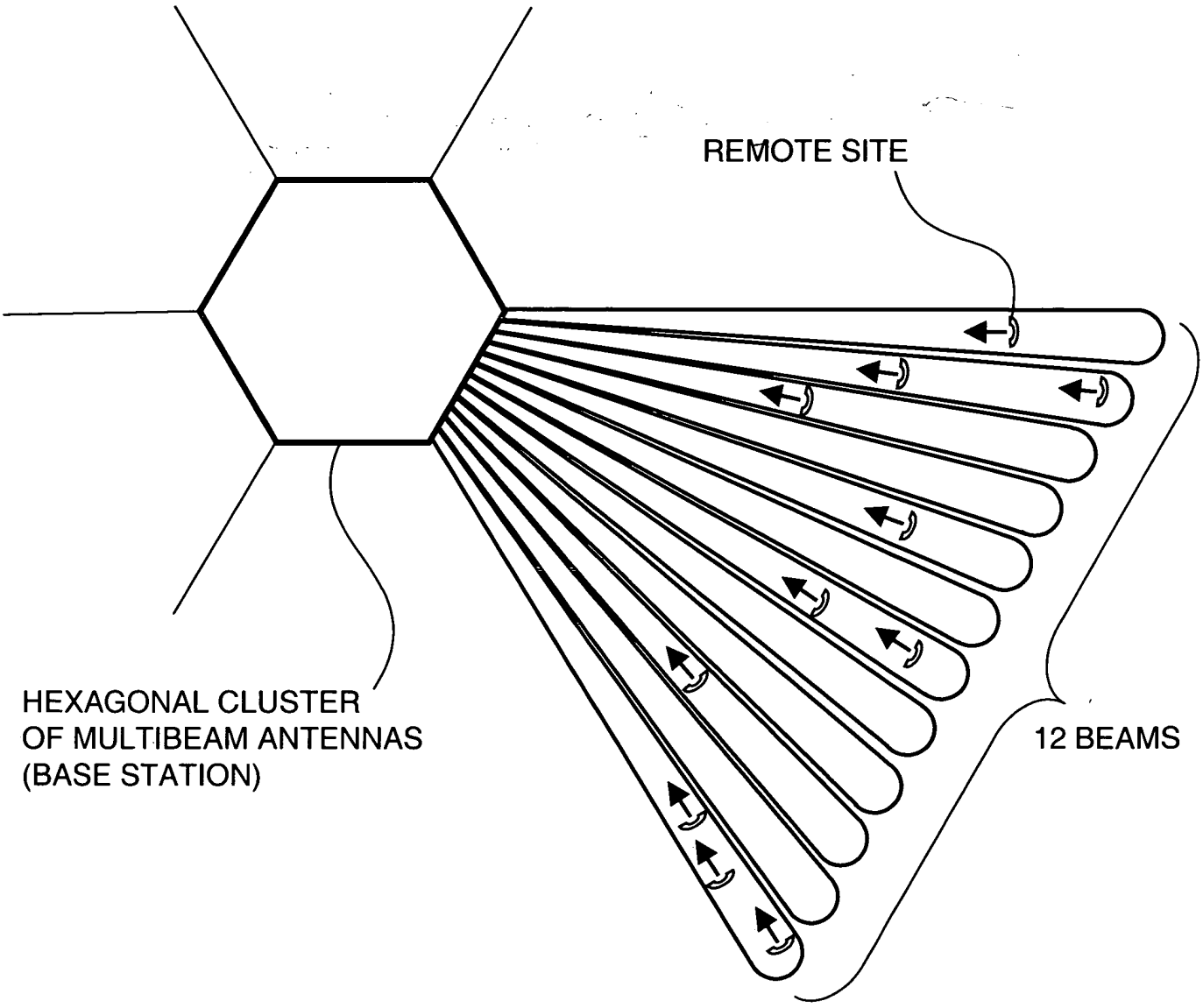


FIG. 15A

09596875.082601

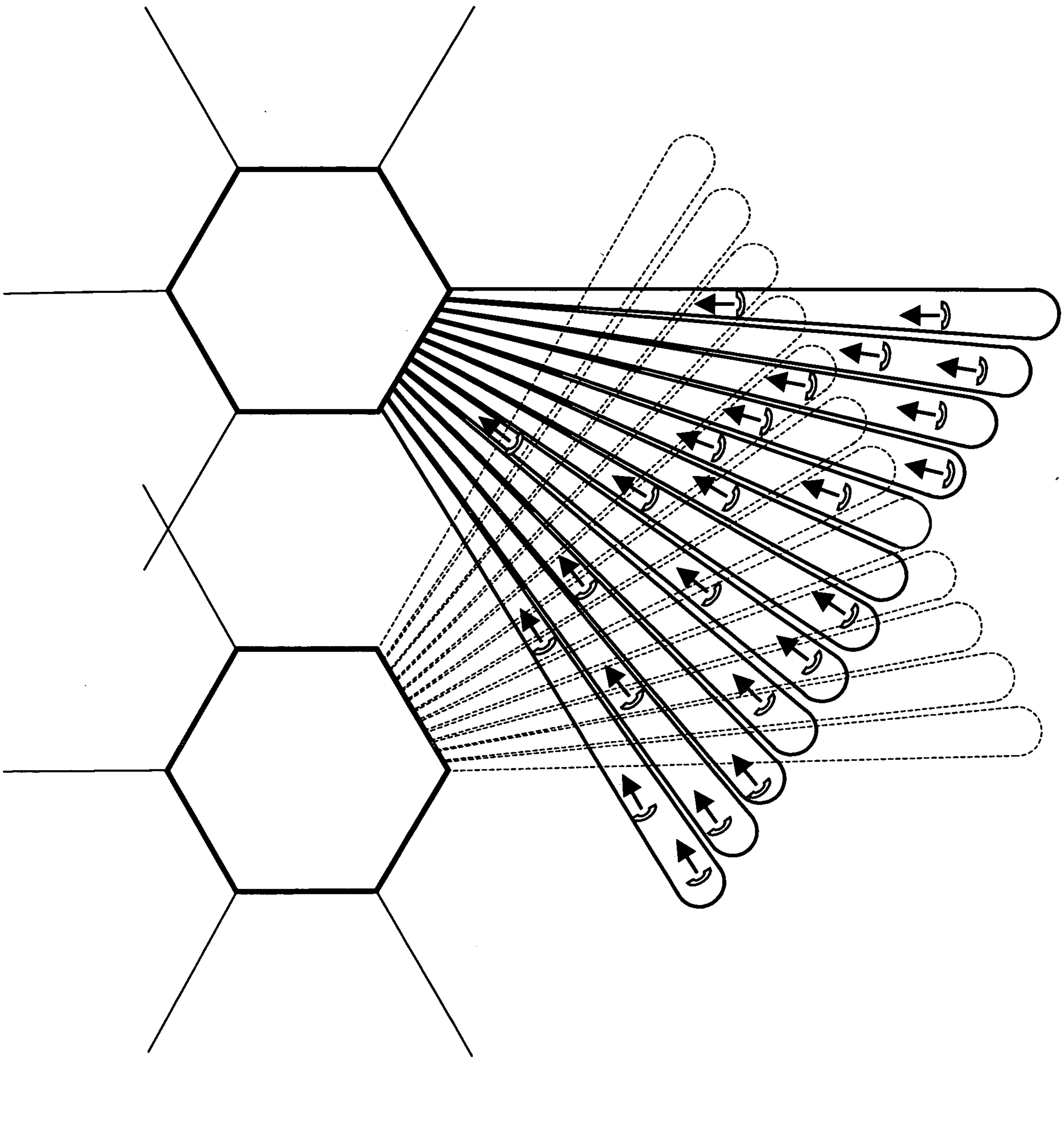


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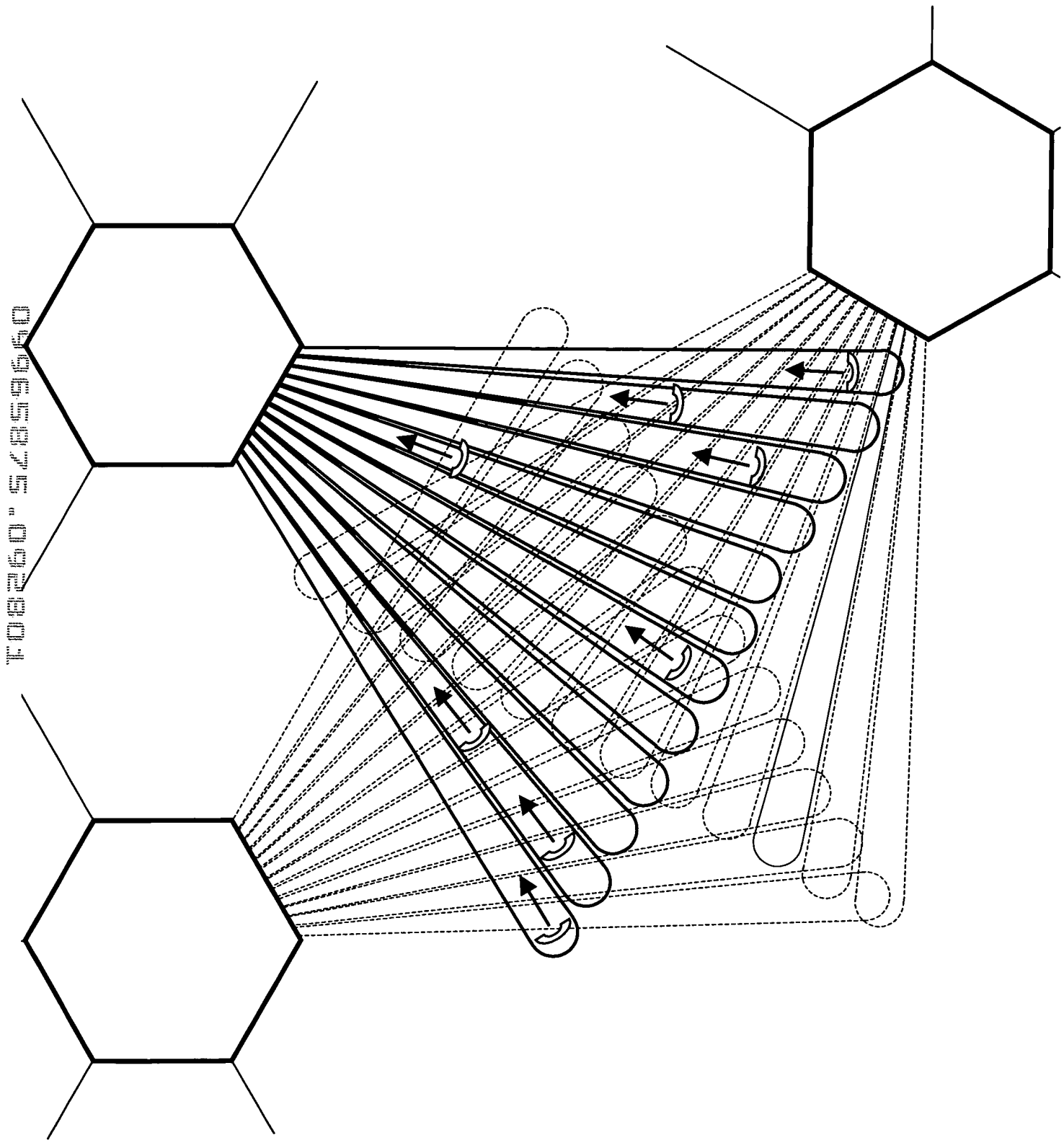
FIG.15B



4810-PAT/6-22

FIG.15C

Docket No. 4810

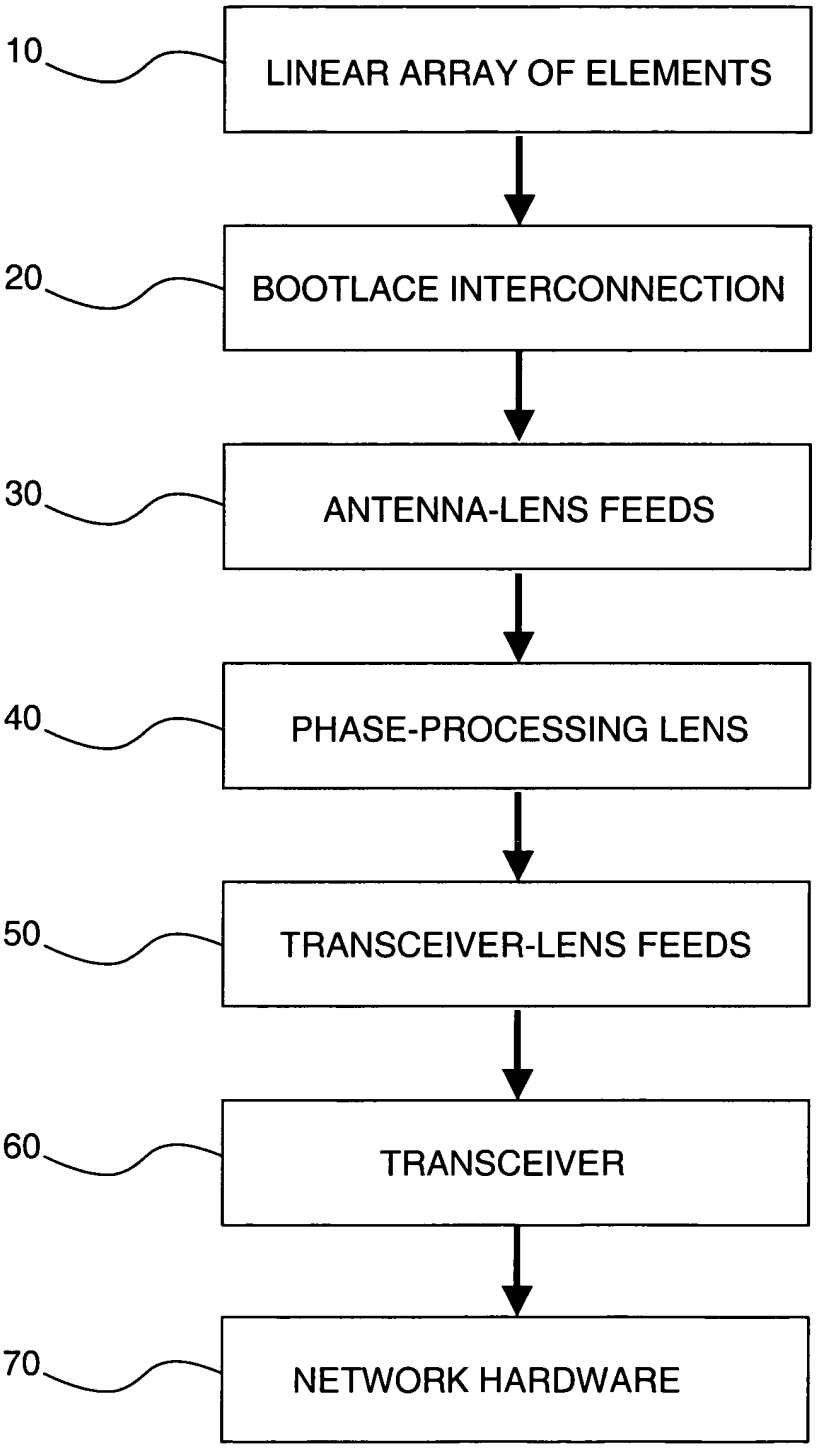


FIG. 16

TOP VIEW

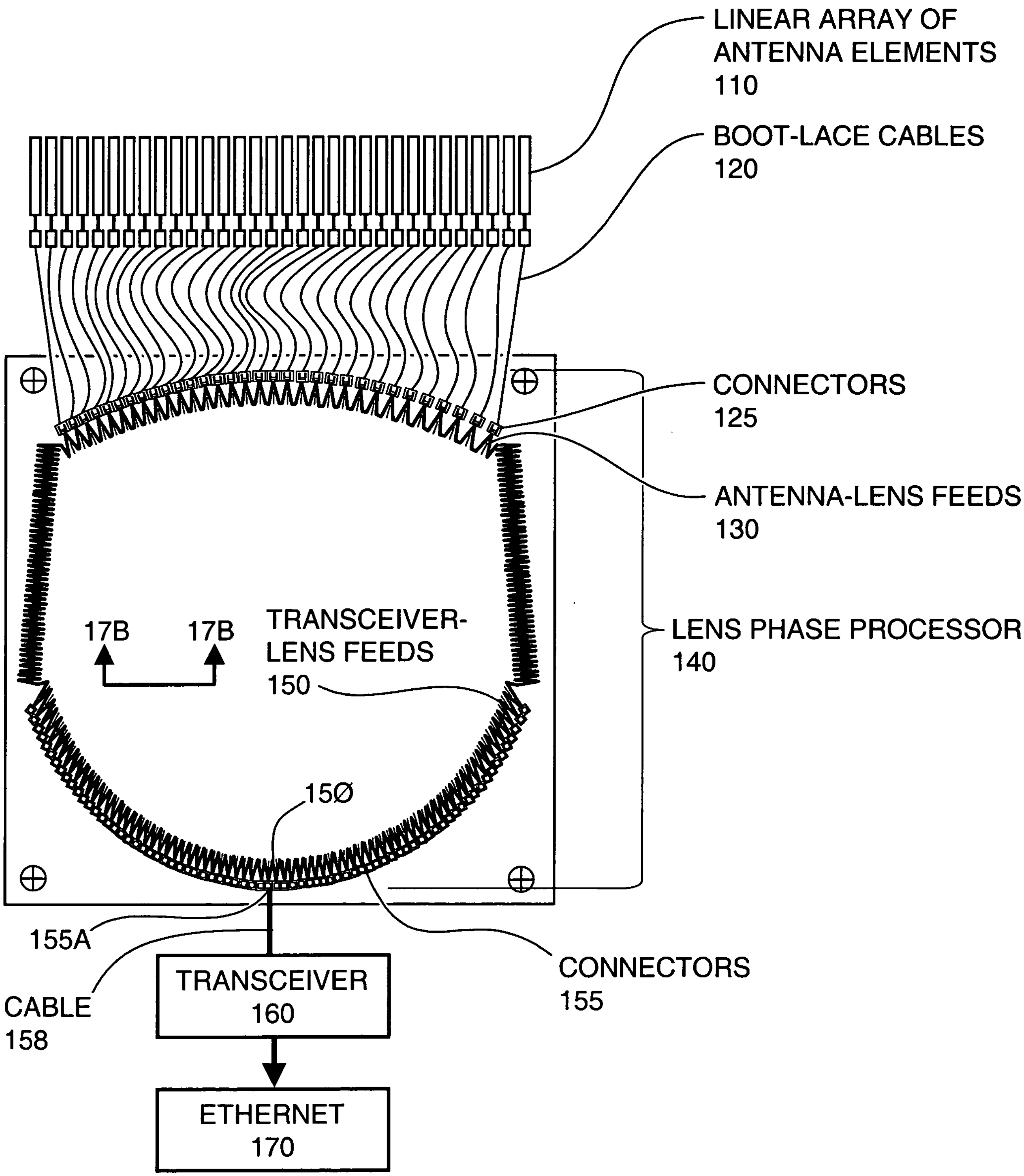


FIG. 17A

EP 0 905 814 A2

SIDE VIEW

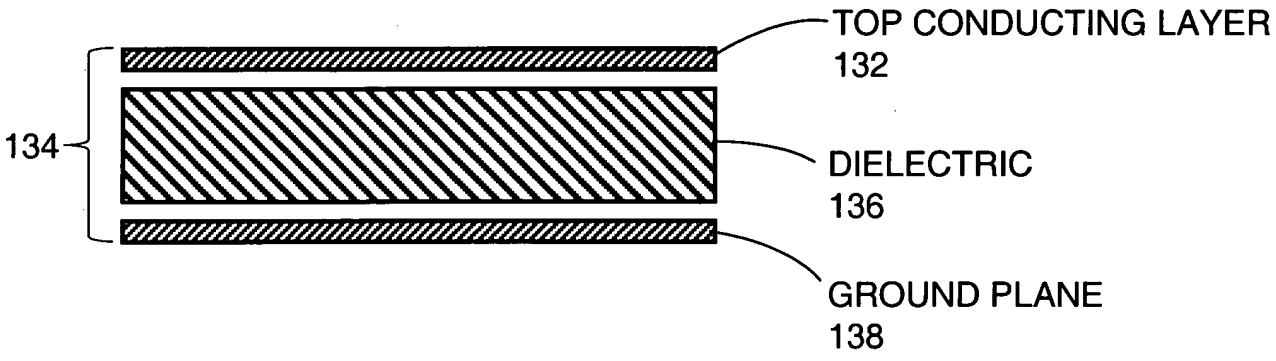


FIG. 17B

TOP VIEW

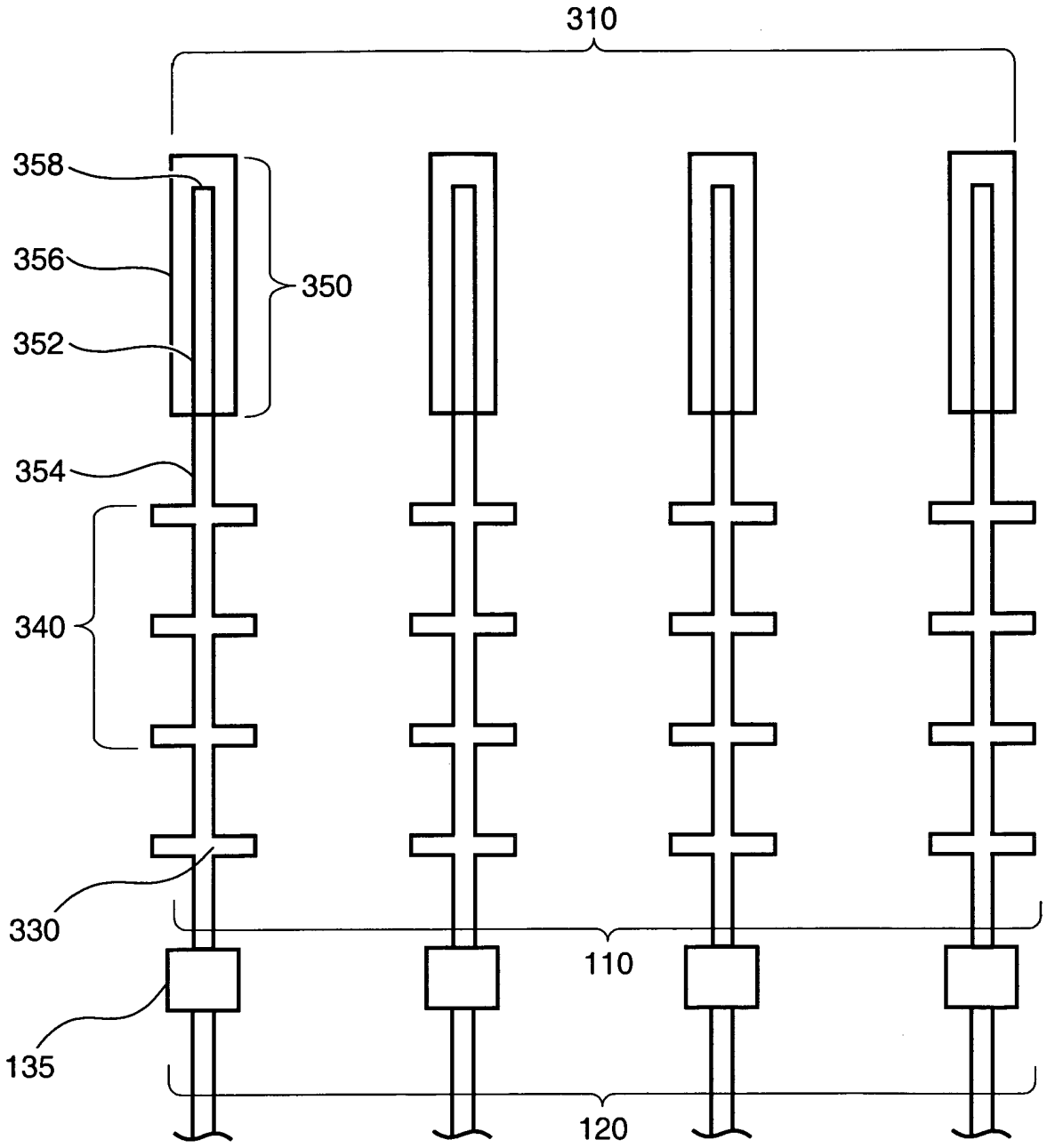


FIG. 18A

END VIEW

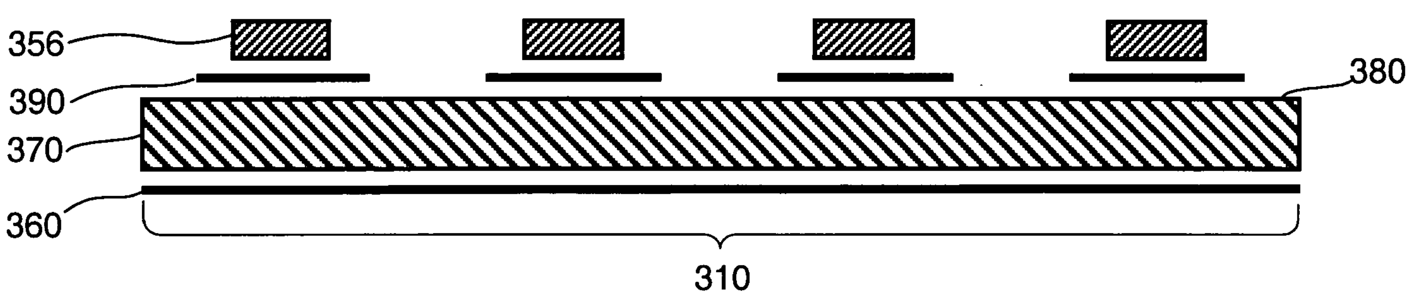


FIG. 18B

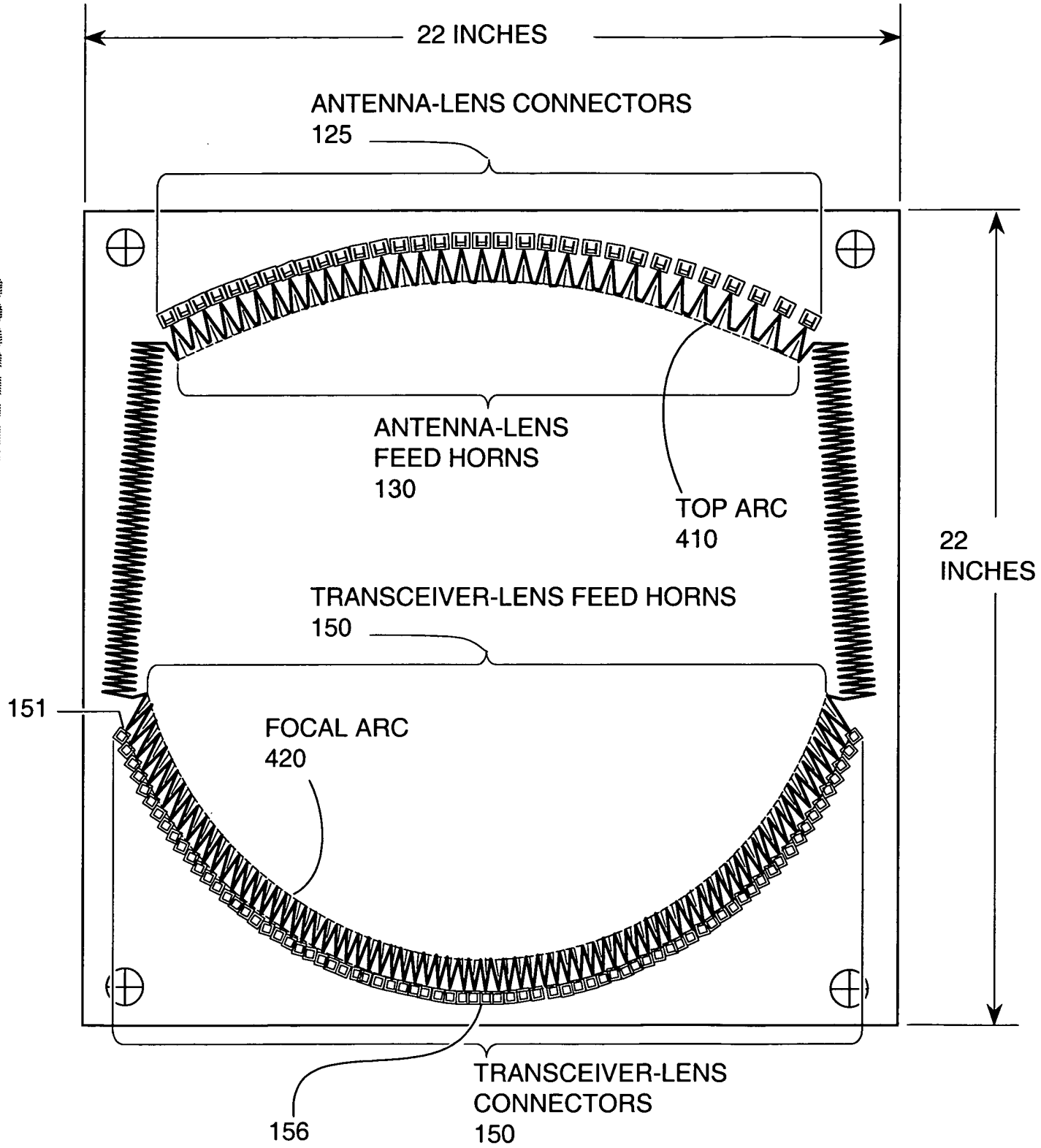

22 INCHES
ANTENNA-LENS CONNECTORS
125
ANTENNA-LENS
FEED HORNS
130
TOP ARC
410
22
INCHES
TRANSCEIVER-LENS FEED HORNS
150
151
FOCAL ARC
420
TRANSCEIVER-LENS
CONNECTORS
150
156

FIG. 19

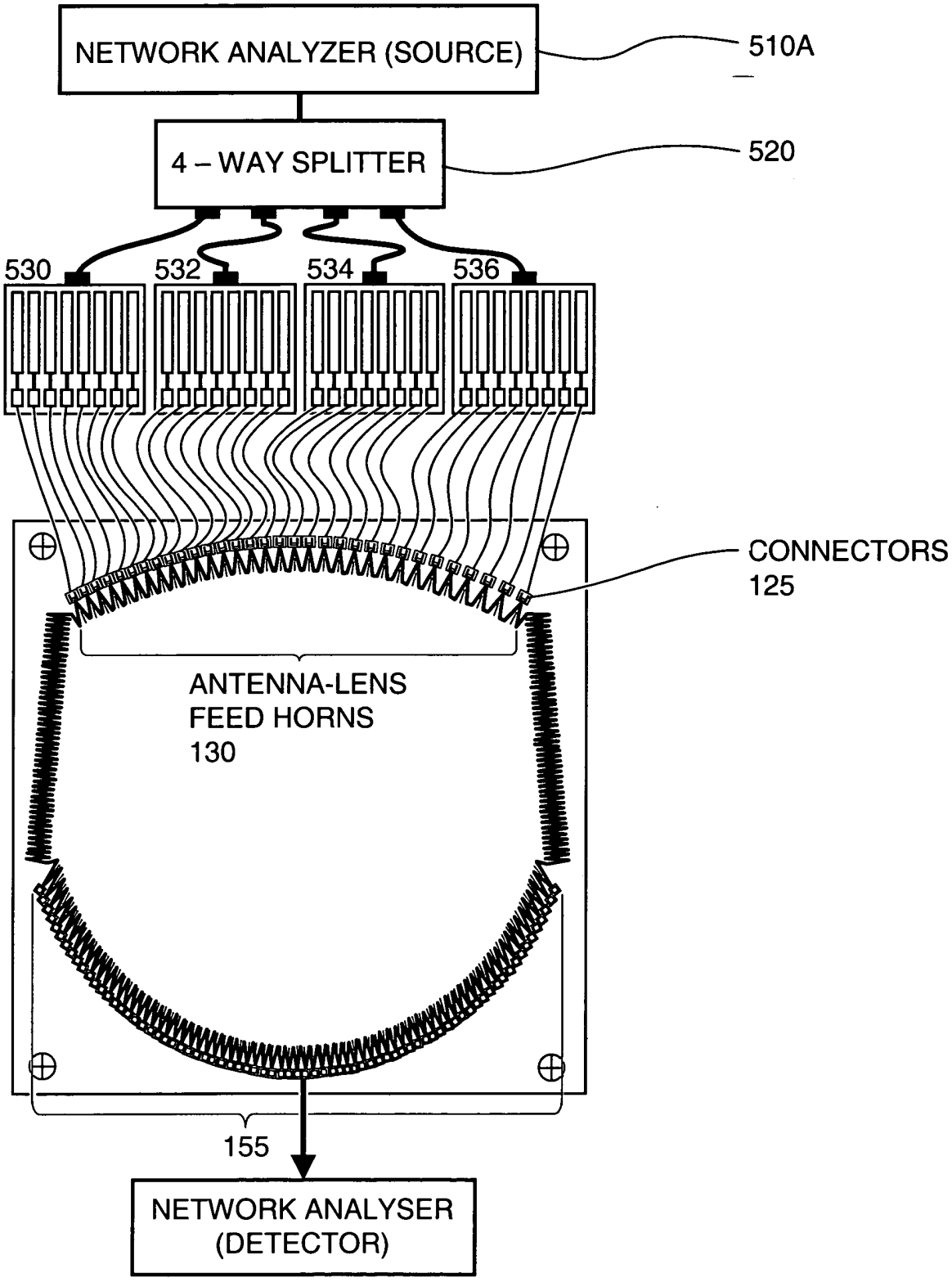

NETWORK ANALYZER (SOURCE)
510A
4 – WAY SPLITTER
520
530
532
534
536
CONNECTORS
125
ANTENNA-LENS
FEED HORNS
130
155
NETWORK ANALYSER
(DETECTOR)

FIG. 20

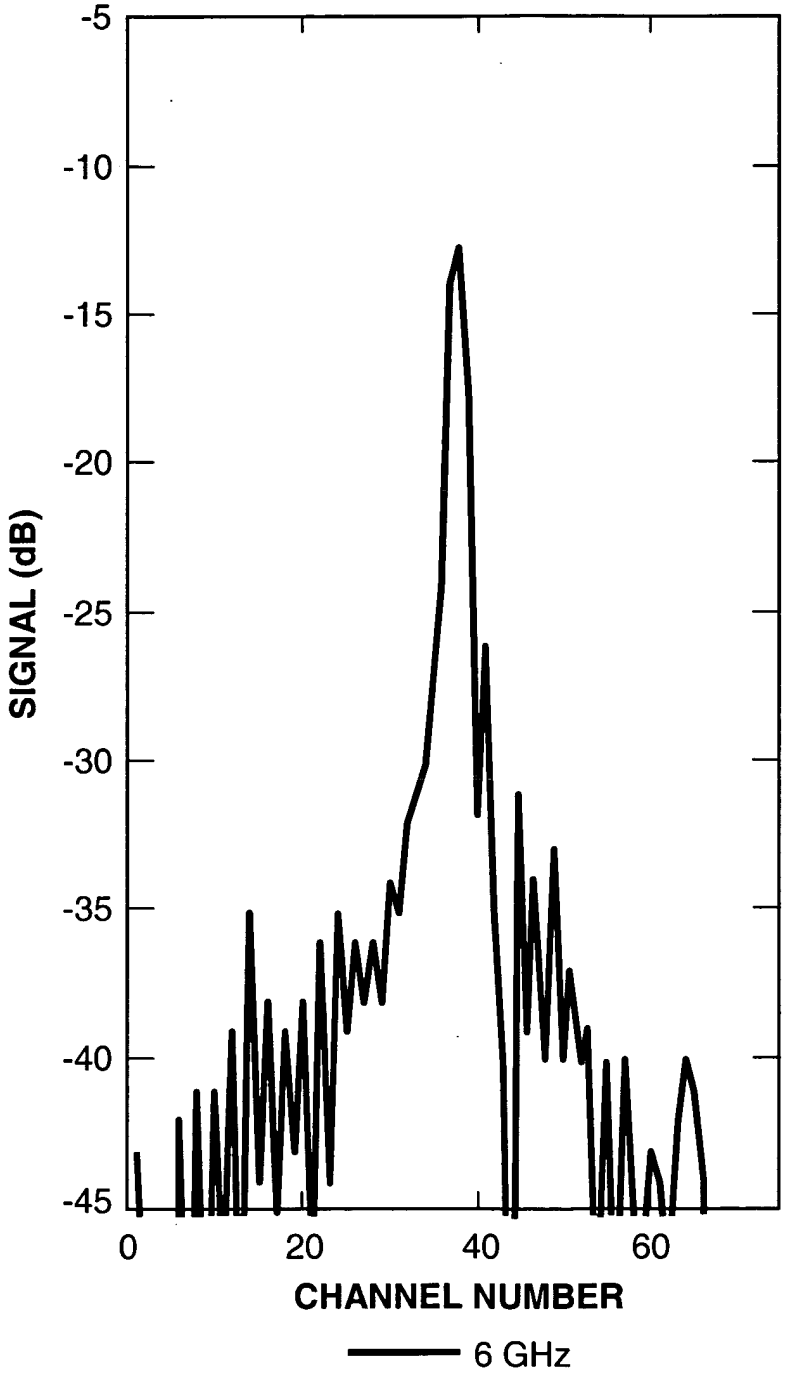


FIG. 21A

Patent Application Publication

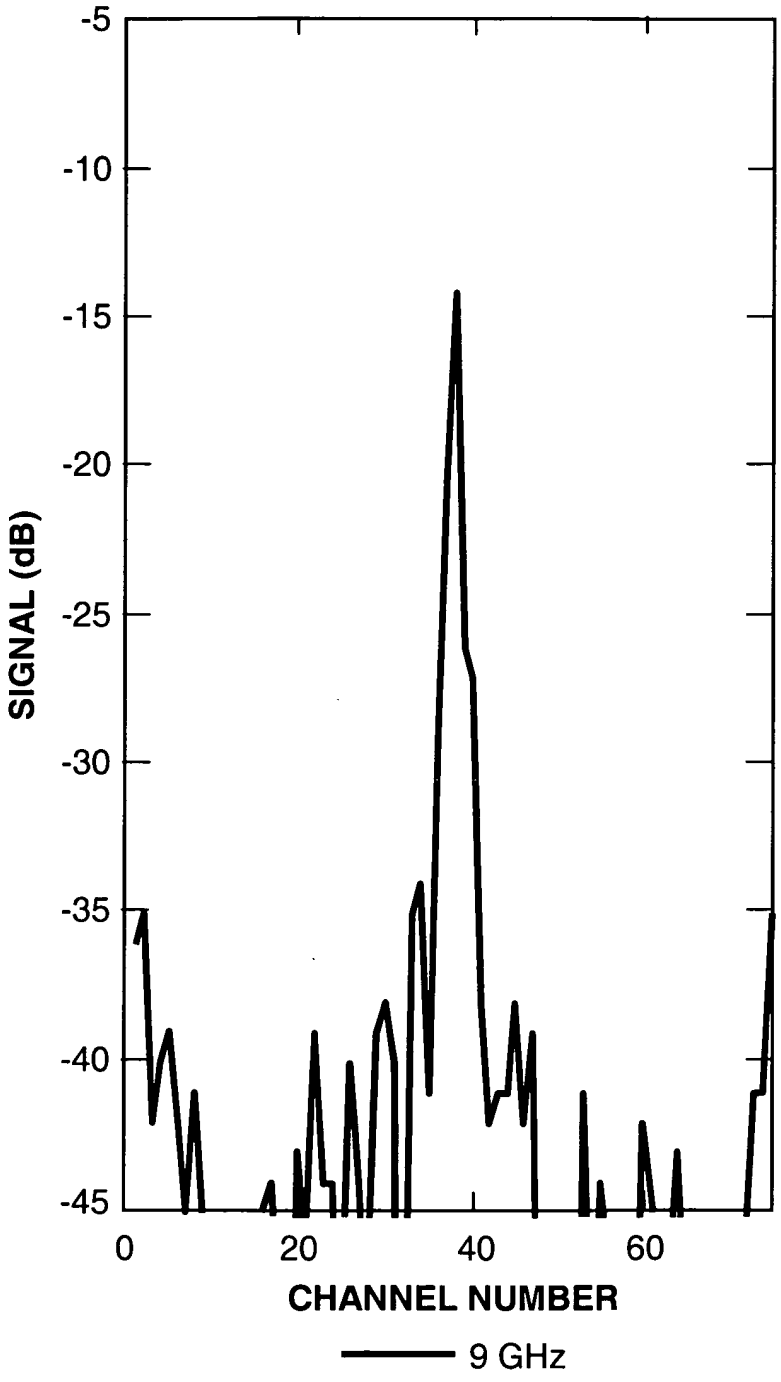


FIG. 21B

EP 0 695 954 A2

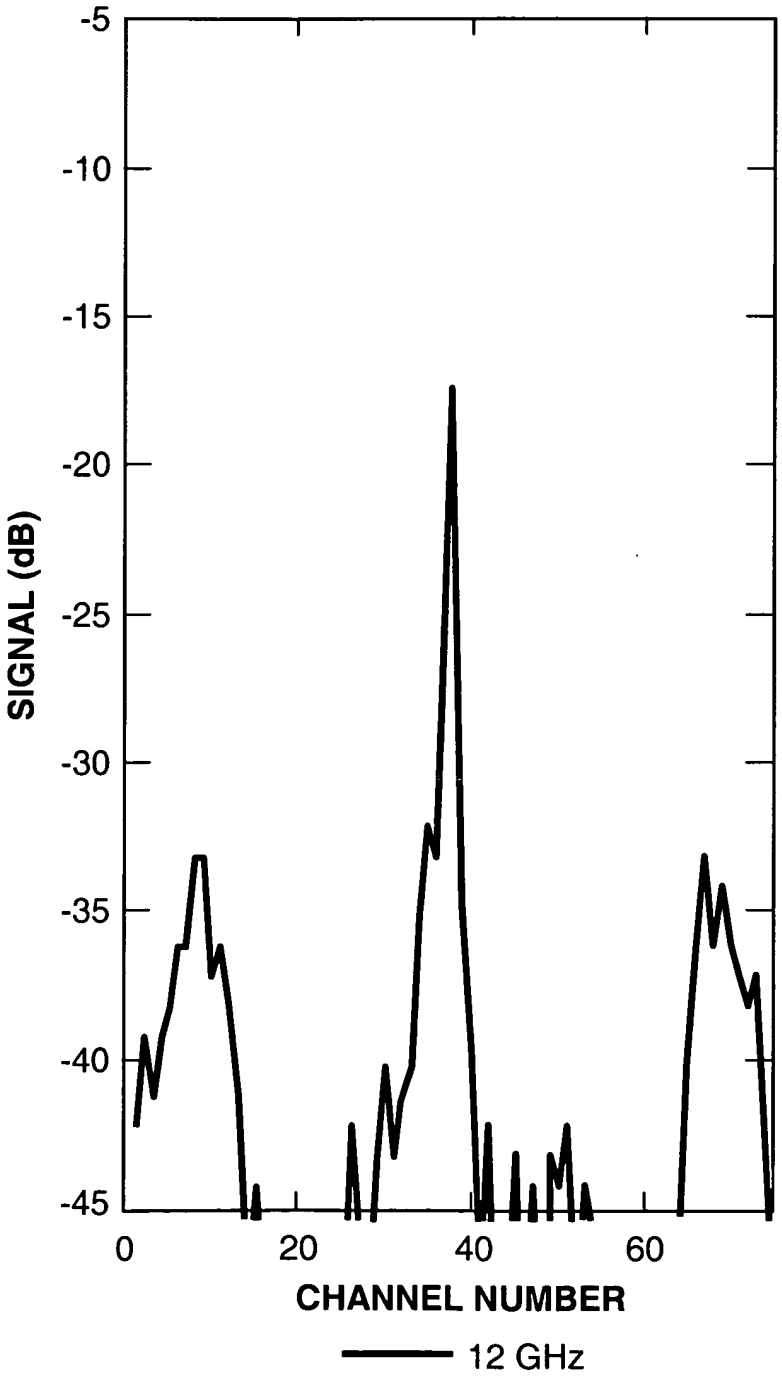


FIG. 21C

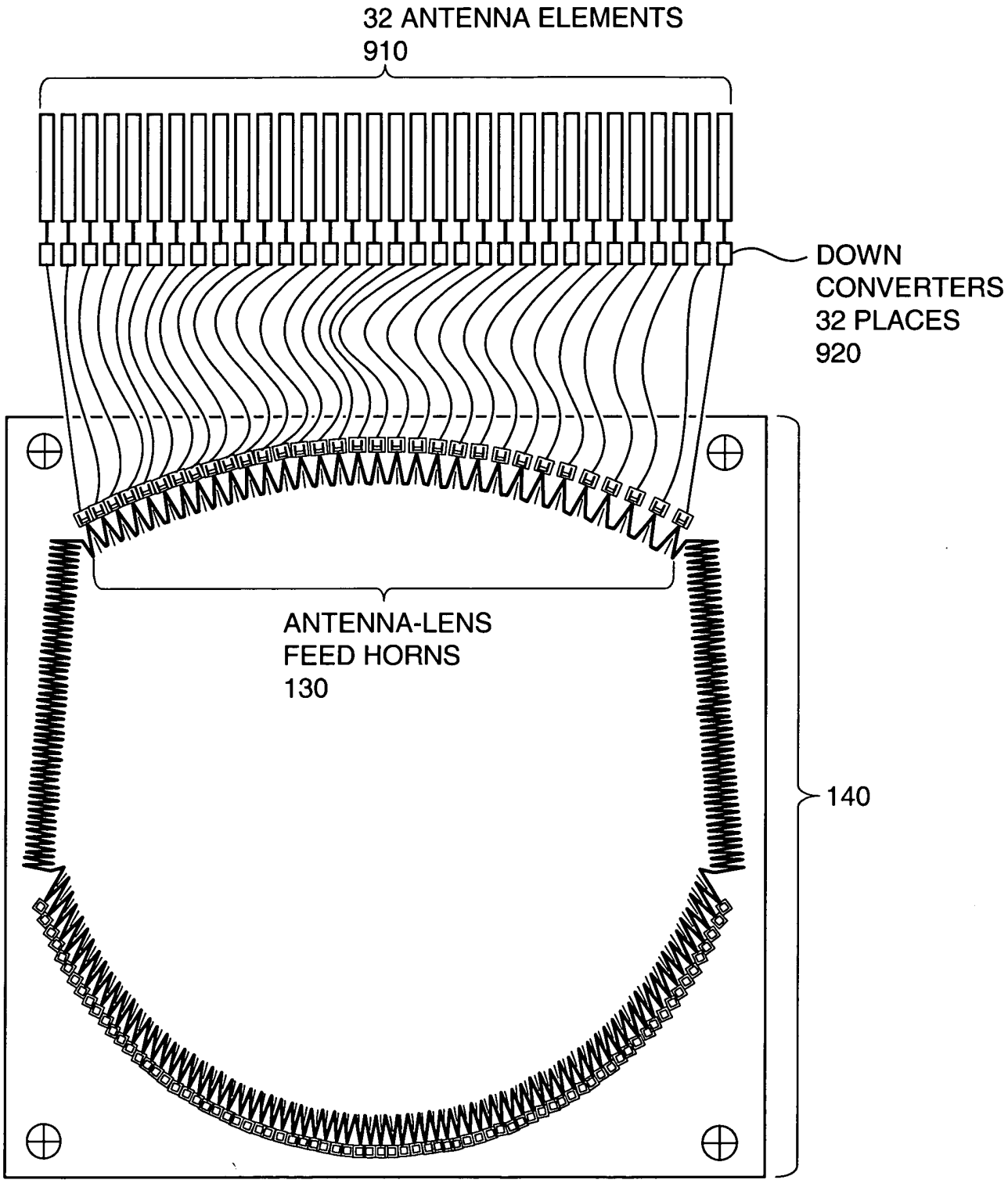

32 ANTENNA ELEMENTS
910
DOWN
CONVERTERS
32 PLACES
920
ANTENNA-LENS
FEED HORNS
130
140

FIG. 22

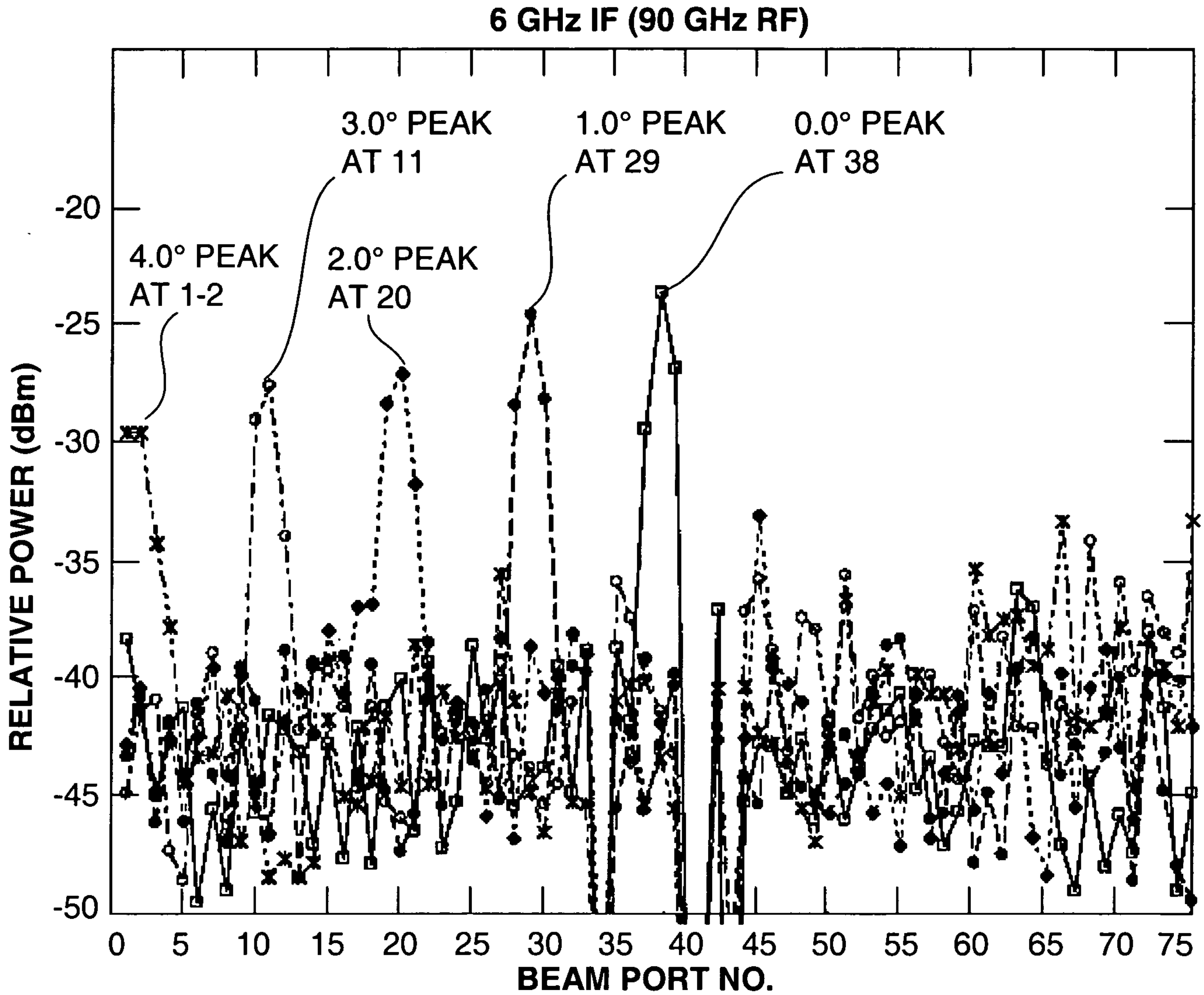

6 GHz IF (90 GHz RF)
4.0° PEAK AT 1-2
3.0° PEAK AT 11
2.0° PEAK AT 20
1.0° PEAK AT 29
0.0° PEAK AT 38
RELATIVE POWER (dBm)
-20
-25
-30
-35
-40
-45
-50
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75
BEAM PORT NO.

FIG. 23A

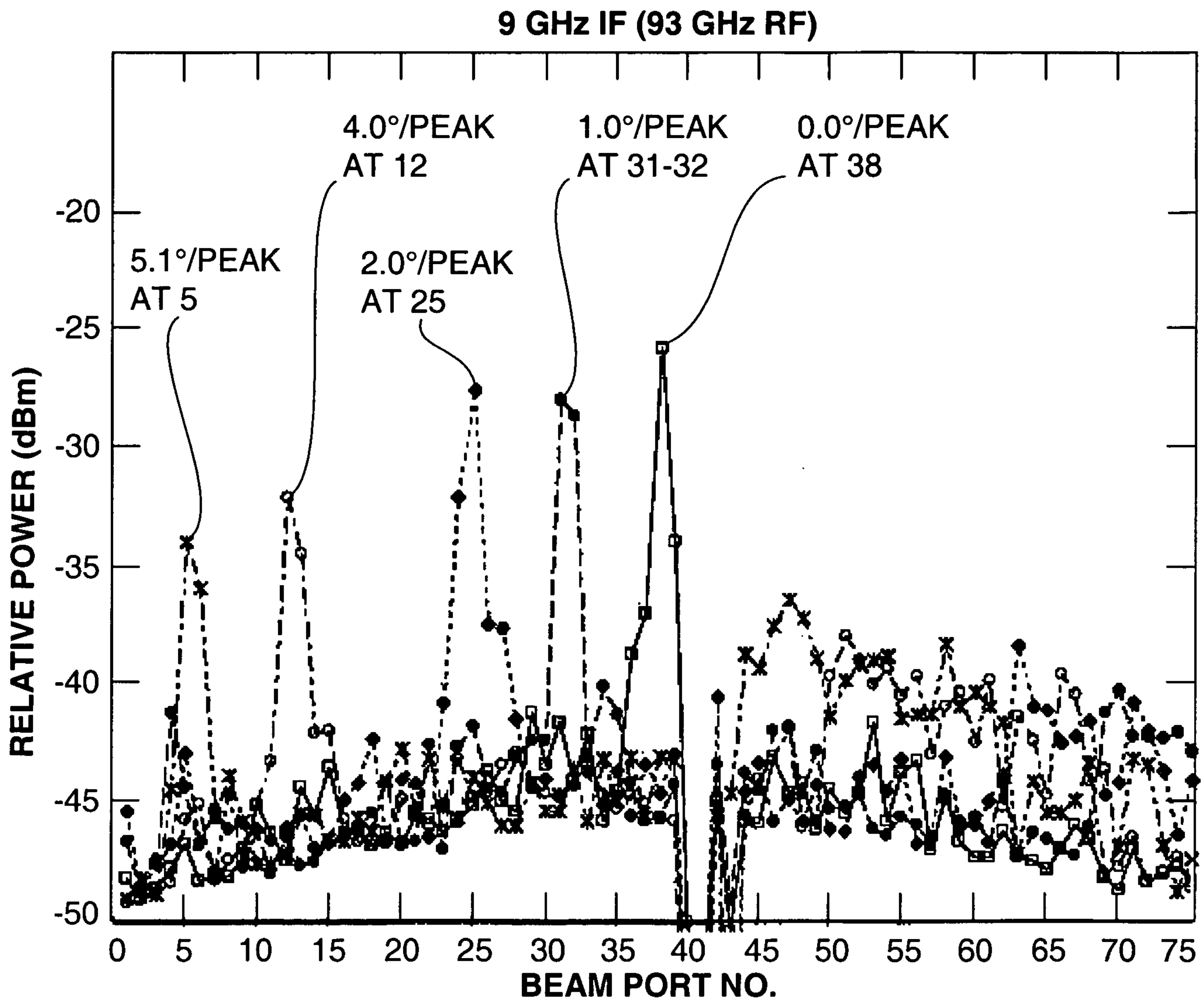
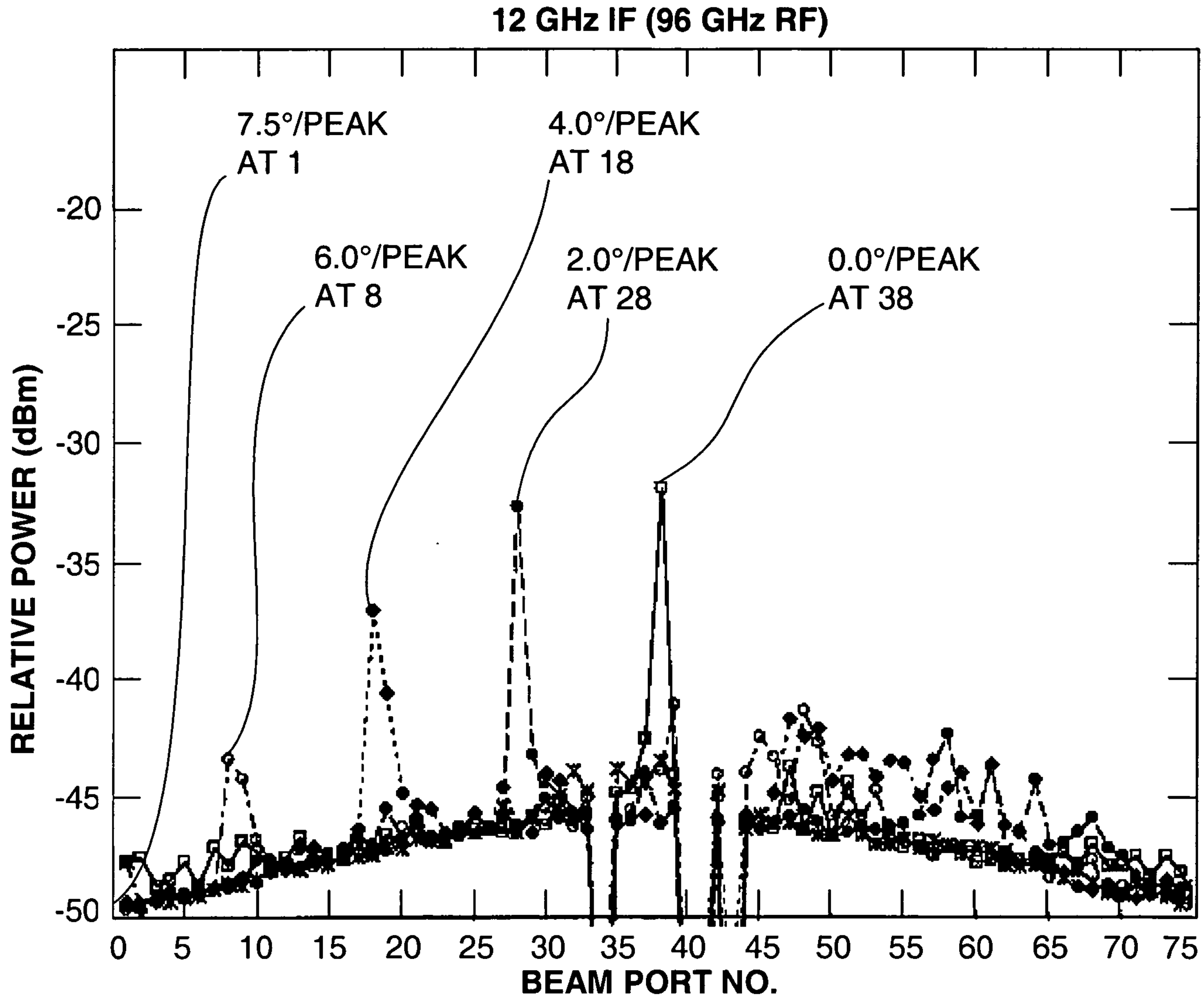

9 GHz IF (93 GHz RF)
RELATIVE POWER (dBm)
BEAM PORT NO.
-20
-25
-30
-35
-40
-45
-50
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
5.1°/PEAK
AT 5
4.0°/PEAK
AT 12
2.0°/PEAK
AT 25
1.0°/PEAK
AT 31-32
0.0°/PEAK
AT 38

FIG. 23B



09585757 . 092801

FIG. 23C